

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA

AT HUNTINGTON

OHIO VALLEY ENVIRONMENTAL
COALITION, INC., and WEST
VIRGINIA HIGHLANDS
CONSERVANCY, INC.,

Plaintiffs,

v.

APOGEE COAL COMPANY, LLC, and
HOBET MINING, LLC,

Defendants.

CIVIL ACTION NOS. 3:07-00413,
3:08-00088,
3:09-01167

Huntington, West Virginia
August 9, 2010

TRANSCRIPT OF BENCH TRIAL - DAY 1
BEFORE THE HONORABLE ROBERT C. CHAMBERS
UNITED STATES DISTRICT JUDGE

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1 Monday, August 9, 2010, at 1:23 p.m. in open court

2 THE COURT: All right. Are we ready to proceed?

3 MR. LOVETT: Yes, Your Honor.

4 THE COURT: All right. Mr. Lovett?

5 MR. LOVETT: The parties agreed to short openings.

6 Is that okay with the Court?

7 THE COURT: That'd be great.

8 MR. LOVETT: Okay. Plaintiffs are asking that
9 Patriot be held in contempt for its failure to comply with the
10 consent decree and for the Court to issue an injunction
11 compelling compliance at Hobet 22.

12 It's clear that it will cost Patriot several tens of
13 millions of dollars to comply with its limits. Patriot has at
14 least 72 outfalls in West Virginia where it is violating its
15 selenium limits. Other coal companies also have scores of
16 limits out of compliance. Rather than to comply with the
17 limits, however, as this case has shown, Patriot has
18 relentlessly and systematically tried to delay its day of
19 reckoning.

20 Patriot and mountaintop mining operations generally are
21 avoiding the cost of business and pushing them off onto the
22 state and taxpayers to remediate them in the future. Patriot
23 and other coal companies are continuing to apply for and
24 receive permits in selenium-producing seams because they have
25 not yet been asked to pay the cost of their business.

1 We will ask the Court to stop Patriot from externalizing
2 its costs and force it to comply with the Clean Water Act.
3 Patriot is not currently complying with the selenium limits at
4 Hobet 22 or at Apogee. Patriot has never written or
5 commissioned a plan to achieve full compliance at any of the
6 four outfalls at issue in this case. It has never asked any
7 engineering company to help it comply by any fixed date. In
8 fact, Patriot did not tell CH2M Hill, which is its consulting
9 engineering firm, that it had to comply with its limits by any
10 fixed deadline.

11 Patriot has not asked its engineers or CH2M Hill or any
12 other firm to prepare a plan to comply by July 2012, the date
13 until which it now asks to have its -- the consent decree
14 modified to. It is, however, clear that at least three
15 technologies will bring Patriot into compliance; reverse
16 osmosis, including VSEP, which the Court heard about in the
17 previous hearing, ABMet, which is a General Electric
18 biological treatment technology, and an FBR, a fluidized bed
19 reactor, which is another biological treatment system.

20 Zero valent iron, however, which the Court also heard
21 extensively about in its previous hearing, has not been
22 successful in treating water at 5 parts per billion or less
23 consistently at any outfall.

24 Patriot has known since at least the July 2008 hearing
25 before this Court and since the January 2009 CH2M Hill

1 report that it will have to equalize flows at Apogee in order
2 to treat, yet Patriot has not designed or had an equalization
3 treatment system designed by anyone else.

4 For example, at Outfall 001, which is the largest outfall
5 of Apogee, CH2M Hill told Apogee in January 2009 that it must
6 construct an impoundment the size of a small to medium waste
7 treatment impoundment. In other words, it would have to have
8 a 60-foot dam in order to treat there. Patriot did not even
9 bring a geotechnical engineer on-site until May 18th of this
10 year, after the deadline in the decree. The geological
11 study -- geotechnical study still has not been commissioned.
12 So in terms of equalization, Apogee and Patriot generally are
13 in exactly the same place today that they were two years ago.

14 Patriot has not built and has not decided what technology
15 it will use to treat. It has no date by which it will make
16 that decision. It's interesting to note I think that the
17 July 2012 deadline, you'll hear testimony that Patriot cannot
18 comply with that date for compliance.

19 In addition, Patriot still has not come clean with regard
20 to its liability. It is still significantly underreporting
21 its liabilities for the treatment-related costs at
22 \$101.8 million for capital and operating costs in its most
23 recent quarterly statement. This is an underestimate of at
24 least one order of magnitude, and Patriot knows it. This
25 underreporting is part and parcel of Patriot's strategy to

1 kick the can down the road and saddle somebody else with its
2 liabilities.

3 It shows that -- the quarterly report shows that by
4 July -- strike that. Patriot knew by July of 2009 that it did
5 not comply -- intend to comply with its limits; and its
6 quarterly reports, along with some studies from Potesta, will
7 make that clear, all of this while Patriot brags in its
8 March 31, 2010 quarterly report a cost savings of three fifty
9 per ton in Central Appalachia from efficiencies on nearly
10 6 million tons, or more than \$20 million.

11 Plaintiffs will call six witnesses in the case. We hope
12 to move through them quickly. I'll just give the Court sort
13 of a roadmap of where we intend to go.

14 The first witness will be from CONSOL, which will show
15 that at least one coal company when given an order by a
16 regulatory agency actually takes it seriously and tries to
17 comply with it. In fact, CONSOL is spending close to
18 \$200 million on a reverse osmosis treatment system in Northern
19 West Virginia and has done -- has also constructed a reverse
20 osmosis treatment system in Buchanan, Virginia at a cost of
21 nearly \$100 million. And the water characterizations from the
22 Northern West Virginia site shows that that water is harder to
23 treat with reverse osmosis than is the water from the Apogee
24 site. That will be our first witness.

25 The second witness will be John McHale, who has testified

1 here before for the company. Then Mr. Rooney from GE will
2 appear on video to talk about the ABMet technology which GE
3 piloted at one of the Hobet outfalls and which we believe, as
4 did GE, the pilot was successful and showed that it would
5 treat selenium at these sites to below 5 parts per billion.

6 Next will be John Koon, an engineer that we've retained
7 to review the records and explain to the Court what we think
8 the engineering options, costs, and schedules should be.

9 The final two witnesses deal with economic issues. Harry
10 Potter is an accountant who will talk about the availability
11 of money that Patriot has to pay for this system. And last,
12 Dr. Mike Kavanaugh, an economist, will talk -- will explain to
13 the Court what we think appropriate fines for avoided costs
14 are.

15 So let me tell you what we will ask for. We'll ask for
16 compliance with the permit, both permits, within 27 months.
17 We'll ask the Court to order the use of either an RO system,
18 including VSEP, ABMet, or an FBR. We'll ask for a detailed
19 schedule with interim enforceable milestones to be enforced by
20 the Court with the help of an independent engineer as an
21 expert or a special master, if necessary.

22 We'll ask for a letter of credit to make sure that Apogee
23 will be forced to comply in the future and will not be able to
24 avoid costs, a letter of credit of approximately \$95 million
25 to be made to the Court. And that's broken down. We think

1 that the Apogee costs for treating the first flush of a
2 25-year storm will be approximately \$60 million at three
3 outfalls for total installed costs, we think at Hobet 22
4 approximately \$15 million for total installed costs based on
5 an FBR system. Other systems would be more expensive. And
6 \$20 million for equalization costs, bringing a total letter of
7 credit to \$95 million.

8 Again, we'll ask that the Court order Apogee to treat the
9 first flush of a 25-year storm or 5150 gallons per minute at
10 Apogee. And that will require equalization. Because Apogee
11 has been dragging its feet, we still don't know whether an
12 impoundment can actually be built at Outfall Number 1. If it
13 can be, there's testimony in depositions that that will cost
14 somewhere between two and five million dollars. If, however,
15 it can't be built, more expensive storage requirements will be
16 necessary, like storage tanks. So that's why we ask for
17 \$20 million there, for a total of \$95 million. And that's
18 what we'll be asking for.

19 THE COURT: All right.

20 MR. LOVETT: Thank you. I'm sorry, Your Honor. I
21 left off a witness. Mark Schroeder, who's the CFO of Patriot
22 Coal, we'll also call him.

23 THE COURT: All right. Mr. Hurney?

24 MR. HURNEY: Good afternoon, Your Honor. I'm not
25 going to belabor the Court with anything too fancy here, but

1 I'd like to --

2 CLERK JUSTICE: There's a laptop button to push.

3 MR. HURNEY: It should be --

4 THE COURT: Here we go.

5 MR. HURNEY: May it please the Court. Your Honor,
6 I'm here on behalf of Apogee and Hobet. There are two issues
7 pending in this court. Excuse me, Your Honor.

8 There are two issues. The first is my client's motion
9 for an extension of the April 5, 2010 deadline established
10 under the agreed consent order entered by this Court back in
11 March of 2008 and the plaintiff's motion for -- to hold us in
12 contempt for failing to comply with that order.

13 Your Honor, my colleague, Mr. Lovett, started with where
14 we were two years ago, in 2008, and where we are today, and I
15 think the general tenor of the comment would suggest to this
16 Court that Patriot and Apogee and Hobet have done nothing. I
17 would suggest to the Court that you will hear evidence over
18 the next several days that that's not correct, that they have
19 taken great strides to attempt to comply with your order, that
20 they have retained consultants, that they have evaluated
21 technologies, and that they have done the best they can to
22 come to a technology that will work. And this is against
23 significant challenges.

24 I can't help but reflect upon the contrast in what we
25 know today and what we've learned over these two years with

1 what happened and what we heard in 2008. And the Court will
2 recall that in your order of July 7, 2008, you quoted -- you
3 referred to the expert witness who testified regarding VSEP,
4 which is a variant of reverse osmosis, and your order says
5 plaintiff's expert testified that a VSEP treatment system
6 could be implemented within four to six months, you know,
7 after agreeing on a contract.

8 I think the evidence today will demonstrate that the
9 process by which you get from the start of engineering and
10 proceeding through construction and completing a project is
11 far more than four to six months, and we know that because of
12 all of the things that Patriot has done over these last two
13 years.

14 I thought that I'd take just a moment, Your Honor,
15 because I think it's important. I wanted to orient the Court.
16 And this is just I think a great program. It's Google Earth.
17 And you can see I've marked with a yellow pin the Mud Lick
18 outlet, I've marked with red Slab Fork, and I've marked with
19 red the Titanic outlet.

20 You'll hear the evidence this week, Your Honor, that Slab
21 Fork has the largest flows. I think the CH2M Hill report of
22 January 2009 estimated 750 gallons per minute base, about
23 1600 gallons as a -- what they refer as a design flow. You'll
24 hear testimony that flows may be higher, may be lower in dry
25 times. The issue of flow is a huge challenge. Mud Lick has

1 got lesser flows, I think 400-some gallons per minute. And
2 then you get down to Titanic, and those are in the
3 hundred-gallon-per-minute range. So if you go over to
4 Hobet 22, which was added onto this case, I think you'll find
5 that, if I recall correctly, it was around 400 gallons per
6 minute. I might be wrong on that. But we're dealing with
7 three outlets which when you compare the thought that we could
8 wheel in a piece of equipment and fix this with what we know
9 now, the challenges of determining flow, how much flow do you
10 have to treat to ensure compliance with the Clean Water Act;
11 and just by way of example, Your Honor, we talk about 800 to
12 1600 gallons per minute at Slab Fork, and that's a lot of
13 water. I think the numbers for a 25-year storm may be
14 somewhere in excess of 400,000 gallons per minute.

15 And you'll hear testimony about equalization, and we
16 throw it around. Equalization is, is how much of a structure
17 are you going to have to build to hold enough water so that
18 you can treat it through a system. We believe you'll hear
19 testimony that calculating the amount of water that needs to
20 be treated might be much less than the 25-year flow. We think
21 that our engineers will estimate that treating between a one-
22 and five-year storm flow will be adequate to ensure
23 compliance. And you'll hear that testimony and invite the
24 Court, as is your right under the rules, to ask any questions
25 you want of our consultants.

1 And so we have a significant challenge, but one of the
2 issues may be can we accomplish this by expanding ponds,
3 existing ponds, and do things that would not require what we
4 believe the testimony to show to be a lengthy period to gain
5 permits. If you want to build a big dam, that takes a long
6 time to get a permit. And we have not -- you know, my
7 colleague, Mr. Lovett, is correct; we have started to look
8 into that issue. We have not commissioned anyone to do it
9 because we still -- we are just now at the point where we
10 think we have the system that will work. And I think that
11 what you'll hear this week is that we think after working with
12 CH2M Hill and other consultants, that a fluidized bed reactor
13 is probably the best technology to try to install to ensure
14 compliance.

15 I think the Court has to recognize a couple of things,
16 and indeed my colleague mentions Patriot is at the front end
17 of the coal industry on this. As the Court is aware, there
18 are a number of other companies with NPDES permits that have
19 selenium limits. The West Virginia legislature got -- you
20 know, they came due in April. The West Virginia legislature
21 authorized the DEP to extend those to July 1 of 2012,
22 recognizing the difficulties in this immediate enforcement.
23 And, frankly, that's -- the July 1, 2012 date is what we asked
24 for in our motion because it made it consistent with others,
25 but I believe the testimony that you'll hear this week will be

1 that to install a fluidized bed reactor at the three Apogee
2 sites will take about two years and six months. And I think
3 that you'll hear experts -- I think Dr. Koon will -- thinks it
4 can be done faster. I think that CH2M Hill believes it could
5 be done -- probably takes more time. I think that's going to
6 be the middle range that you get in terms of how long it will
7 reasonably take to build the system and what we're looking at
8 now.

9 And, frankly, Judge, we met with the other side, as the
10 Court directed, but one of the things that led up, we recently
11 got the final report on the FBR, the fluidized bed reactor,
12 and CH2M Hill has just orally informed us of its belief that
13 these three outlets which you can see could be treated with a
14 single -- if you make some assumptions about the flow that
15 they recommend, they believe that there is a way to treat them
16 with a single facility at Slab Fork. And you'll hear
17 testimony about that.

18 So what I wanted to tell the Court is that I think that
19 we can certainly sit here and put John McHale on the stand and
20 point out stuff he didn't do, and you can point out what we
21 didn't know about this technology, but I would hope the Court
22 would see that the progression and knowledge over the last
23 couple of years funded by -- and, again, we're under orders
24 here, orders in the state court, and so I don't want the Court
25 to think that we weren't doing this pursuant to court order,

1 but they were consent orders. And I think you'll hear that
2 the company spent a substantial amount of money in attempting
3 to solve this problem. And I think that's what I said to you
4 two years ago, is how do we solve the problem, and I think
5 you'll hear that they spent probably around \$9 million to
6 solve this.

7 And one of the things I did last night -- and I always
8 wonder about the wisdom of doing this, but I was thinking
9 about what I wanted to tell the Court about what we did, and I
10 came up with a -- I'm going to use a -- not high tech, but low
11 tech. (Indicating)

12 CLERK JUSTICE: On the touch screen right there,
13 press Document.

14 MR. HURNEY: All right. Excellent. Now, my
15 opponents, who I like very much, are chuckling, Your Honor,
16 and I don't blame them a bit. So to make this a little easier
17 on everybody, may I approach?

18 THE COURT: You may.

19 MR. HURNEY: I thought about sending this out to a
20 graphic artist, but I can make my point by talking about it.

21 If you look at this timeline, what I was trying to
22 illustrate to the Court in a crude manner -- I will tell you,
23 Judge, that at one point I thought I was going to art school.
24 And as you can see, that's probably not going to happen. But
25 if you look at this timeline and just trace the things that

1 we've done and you go back to the 7/2 hearing in 2008, you'll
2 hear testimony that within weeks, as directed by the Court, we
3 retained additional consultants. At the time, we had already
4 been working with Raymond Lovett and ShipShaper on the ZVI
5 technology. Within several weeks, we contacted CH2M Hill, we
6 contacted MATRIC, an engineering firm in South Charleston,
7 contacted GE with respect to its ABMet system and its RO
8 system. We got on the ball to investigate what was available,
9 and this is in the Fall of 2008.

10 You'll see that by January 26th of 2009, within six
11 months, we had a review of technology by CH2M Hill. And then
12 as you follow in 2009 and 2010, you'll see that we began to
13 engage in pilots. There is an RO pilot that was performed in
14 November. There is a GE ABMet pilot that was performed from
15 February to April. There is a pilot of VSEP. And you'll
16 recall from the agreed consent order, Your Honor, there's
17 three or four pages devoted to the piloting of VSEP, which
18 was -- as part of our consent decree, the plaintiffs insisted
19 upon a pilot of the VSEP system. And that was performed under
20 the supervision of CH2M Hill. And you will hear about that.

21 After the VSEP system, you'll also see that we started an
22 FBR pilot. You see that the FBR pilot intersects the deadline
23 of April 5, 2010 that you set for us to be in compliance. In
24 February when we realized that we were not going to be in
25 compliance, we filed a motion, and we've continued to work,

1 Your Honor.

2 During this time you'll also hear testimony, regardless
3 of what my opponents think about ZVI, there will be no
4 disagreement that iron removes selenium from water. Now,
5 there's going to be questions about how much water it can
6 treat, whether it works at higher flows versus lower flows,
7 but there will be no disagreement among the experts that that
8 is one technology that will treat water. And you'll see that
9 even at the same time that we were considering these other
10 technologies, using GE, using CH2M Hill, using MATRIC, that we
11 continued to at least try to institute partial treatment. And
12 there's two reasons for that.

13 I mean one is I think that the idea of a passive system
14 that would work is really important in the coal industry, and
15 I don't think it can be sloughed aside. You know, you saw
16 from -- and I wanted to show you the Google Earth image
17 because these outlets -- and there's lots of them -- are all
18 over the place. They present, as you heard back in 2008,
19 challenges as to power, accessibility, and other things. And,
20 frankly, if you could evolve a system that would be passive,
21 it would be a good thing for the treatment of water.

22 The other thing is, is that we are subject, as the Court
23 is aware through your exercise of jurisdiction over Hobet 22
24 outlet, you're aware that we're under an agreement with the
25 DEP. And part of that agreement is to deploy treatment at

1 outfalls while we work on the problem. And we have been
2 deploying a combination of the GMT ZVI, which are the larger
3 tanks, and the Liberty ZVI, which is the foam in the smaller
4 blue tanks. We've been deploying those at Hobet in an effort
5 to have at least partial treatment. And those are at all
6 outfalls. And you'll hear Mr. McHale or you'll hear testimony
7 about a schedule of doing that pursuant to the agreement with
8 the DEP and without the objection of the DEP. And all of
9 that, as we have been reporting to this Court, we have been
10 reporting to the DEP of our progress and reporting to the
11 Circuit Court of Boone County.

12 So where does this leave us? Number one, I think that we
13 have agreement among the parties that we are going to need
14 additional time to complete this project, and we're going to
15 ask the Court to listen to the expert witnesses and to give us
16 the amount of time that they estimate. And, again, I think it
17 will be about two and a half years.

18 Should there be supervision by the Court? Absolutely.
19 And I suspect they're going to put on evidence of penalties.
20 I suspect that the Court will enforce its supervision through
21 penalties.

22 I think the critical issue is to listen to the expert
23 witnesses and at the end of the day is how much flow has to be
24 treated, because, as my colleague says, if you have to treat
25 every drop of water, that is an astronomical cost, and I don't

1 think anyone recommends as a matter of engineering that that's
2 the way to go. And so we believe that the Court -- we're
3 going to need guidance from the Court.

4 Now, where else does the evidence go? I think we will
5 establish that during the course of your order -- and your
6 order specifically said that this order remains in place and
7 required if anybody wanted to change its terms, that we had to
8 notify the other side before coming to the Court, and we did
9 that.

10 What I think that the efforts of Patriot show is an
11 effort to solve the problem. Were we perfect? No, but I
12 would suggest that you won't find any other company who has
13 done as much as Patriot. And I think there's a lot that the
14 research and development and work that Patriot is doing that
15 overall is going to advance the ball for the industry.

16 So I think that we merit the Court's consideration for
17 additional time. And I tried to think of the best way to
18 argue our motion for additional time, but that's it. We have
19 done a kind of effort, albeit not perfect, Your Honor, and,
20 frankly, I would rather be standing here telling you we've
21 already solved the problem, but we haven't. But I think
22 you'll hear that we have put in the kind of effort that merits
23 consideration of giving us additional time.

24 At the same time, I think our effort should lead the
25 Court to conclude that we shouldn't be punished by contempt.

1 And I thought I understood from the pretrial that the
2 plaintiffs were not -- and I don't believe they're seeking
3 any, you know, award of costs or anything for past -- for
4 failure to perform but merely looking forward in an effort to
5 craft an order that they believe and we believe will, you
6 know, result in ultimate compliance.

7 So I think, as I said in the pretrial, I think there's
8 differences between the parties about our effort, which I
9 think we did -- other than comply with the final order, I
10 think we did a lot of what the Court expected of us, and we
11 reported to the Court, you know. None of this stuff -- in a
12 sense we're having a hearing, but none of what you hear from
13 us will be news because I believe you've heard it in our
14 status reports, and we gave you all of our consultants'
15 reports.

16 Probably the report you'll see that's new is the final
17 report on FBR that we received from CH2M Hill in the last
18 several weeks. And I'll represent to the Court that we have
19 directed -- this morning directed CH2M Hill to price that and
20 get back to us as soon as possible. So we continue to work on
21 the problem.

22 So at the end of the hearing, Your Honor, you know, I
23 will ask the Court to make a finding that -- to grant our
24 motion for additional time, to conclude that maybe we're not
25 perfect, but we did a lot of what the Court ordered us to do,

1 and grant us that additional time based on what the experts
2 say, not deadlines set by the legislature, but based on what
3 the evidence shows is a reasonable time to complete the
4 project, and I'd ask that you find that our effort merits your
5 consideration in not holding that we are in contempt of your
6 order.

7 THE COURT: All right.

8 MR. HURNEY: Thank you.

9 THE COURT: Thank you. All right. The plaintiffs
10 may call their first witness.

11 MR. TEANEY: Thank you, Your Honor. Plaintiffs call
12 Scott Rasmussen.

13 MR. MCLUSKY: Your Honor, if I might, Bob McLusky
14 for the Patriot defendants. I attended the deposition of the
15 CONSOL representative, and we're a little mystified as to the
16 relevance of the testimony I expect to hear. I believe it's
17 going to be testimony that CONSOL is committed to building an
18 expensive treatment plant for chloride, not selenium, for
19 underground mine discharges, not from surface water.

20 So I don't really understand how a different company with
21 a different economic profile working on a different problem
22 has any relevance to the case.

23 THE COURT: Mr. Teaney?

24 MR. TEANEY: Yes. What we expect Mr. Rasmussen to
25 testify about is CONSOL's efforts to comply with a compliance

1 order that set a deadline for compliance with a water quality
2 based effluent limit. Yes, that limit is based on chlorides
3 rather than selenium, but nonetheless they are under an order
4 from the DEP to comply.

5 Now, part of what Mr. Hurney talked about up here in his
6 opening was he wants to establish that Patriot did enough not
7 to be held in contempt. And that's part of the grounds for
8 modifying a consent order, is there must be a finding that the
9 defendant or the person who's trying to modify the consent
10 order has to have complied with the order in good faith and
11 make good faith efforts to comply.

12 Well, what we expect the CONSOL witness to establish is
13 the standard by which that good faith can be measured. Here's
14 a coal company expected to comply with water quality based
15 effluent limits. They're going to use reverse osmosis to do
16 so and they're going to do so in a timely manner.

17 The other reason that this is relevant is that it does go
18 to the technology that's available for treatment. For
19 example, we will introduce evidence both through Mr. Rasmussen
20 as well as our own expert that the wastewater that CONSOL is
21 going to treat at its facility in Northern West Virginia is
22 actually more complex to pretreat using reverse osmosis than
23 the water that comes off the Apogee site.

24 So for those two reasons, we believe that his testimony
25 is relevant.

1 THE COURT: Well, the second of those reasons I
2 agree with. It does seem to me that if you expect his
3 testimony to be that the treatment method that CONSOL is
4 using, albeit to treat for a different effluent, is applicable
5 here, then I'll allow the testimony for that purpose.

6 Just proving that a coal company or any other entity can
7 comply with some effluent limitation imposed either by a court
8 or by DEP, it seems to me that really doesn't establish
9 anything that's helpful to resolving this case.

10 MR. TEANEY: Well, I respectfully disagree, but if
11 that's the Court's ruling, if I could have just a moment to
12 confer with co-counsel.

13 THE COURT: Certainly.

14 (Mr. Teaney and Mr. Lovett conferred privately off the
15 record.)

16 MR. TEANEY: All right. Thank you for your time.

17 THE COURT: All right. Sir, if you would please
18 stand, my clerk is going to administer the oath and then ask
19 you to spell your name so we get it right.

20 CLERK JUSTICE: Please raise your right hand.

21 SCOTT RASMUSSEN, PLAINTIFF'S WITNESS, SWORN

22 CLERK JUSTICE: Spell your last name.

23 THE WITNESS: R-a-s-m-u-s-s-e-n.

24 DIRECT EXAMINATION

25 BY MR. TEANEY:

Rasmussen - Direct

1 Q. Thank you, Mr. Rasmussen. By whom are you employed?

2 A. CONSOL Energy.

3 Q. Thank you. And what do you do for CONSOL Energy?

4 A. I'm a supervisor of water resources and environmental
5 compliance.

6 Q. Are you here pursuant to a subpoena in this matter?

7 A. Yes, I am.

8 Q. Okay. Thank you. Are you familiar with CONSOL's
9 operations that discharge in the Dunkard Creek in Northern
10 West Virginia?

11 A. Yes, I am.

12 Q. Okay. And are there NPDES permits associated with those
13 discharges?

14 A. Yes.

15 Q. And do those NPDES permits have chloride limits that will
16 go --

17 A. That will go into effect, yes.

18 Q. Okay. If you know, are those water quality based
19 effluent limits?

20 A. Yes.

21 Q. Okay. Has DEP ordered CONSOL to comply with those
22 limits?

23 A. Yes.

24 Q. And what method of treatment has CONSOL selected to
25 achieve compliance?

Rasmussen - Direct

1 A. Reverse osmosis with evaporative technology.

2 Q. Okay. And how long did it take CONSOL to conclude that a
3 reverse osmosis was the technology to use?

4 A. We first started looking at the chloride issues back in
5 2002, conclusions for reverse osmosis being the only -- or
6 that being part of the only technology available that could
7 reliably do this. I would say it's probably taken us eighteen
8 months, two years, something like that.

9 Q. Does CONSOL have experience with reverse osmosis at other
10 facilities, if you know?

11 A. Yes. We're building one at the Buchanan site in
12 Virginia.

13 Q. And what is CONSOL using reverse osmosis to treat in
14 Buchanan, Virginia?

15 A. Mine water.

16 Q. Mine water? Do you know what the flow is at the Buchanan
17 facility?

18 A. I understand the Buchanan facility is designed for
19 approximately 1600 gpm.

20 Q. Do you know how long that took to install?

21 A. It's still under construction. I think the latest I
22 heard was it is due to be commissioned in the next month or
23 so. So that would put it at 23, 24 months.

24 Q. Okay. Do you know how much that cost to construct?

25 A. My understanding is it's in the neighborhood of

Rasmussen - Direct

1 \$90 million.

2 Q. Okay. And so based on that experience and the chloride
3 issues in Northern West Virginia, you all are going to
4 construct a reverse osmosis treatment there; is that correct?

5 A. Yes.

6 Q. What is the gallon per minute that it's designed to treat
7 in Northern West Virginia?

8 A. In the Northern West Virginia plant, it's designed for
9 3500 gpm.

10 Q. How many mines is that going to -- or how many mines are
11 going to provide a water source to --

12 A. Three mines.

13 Q. Three mines? Is this what you would call a centralized
14 facility?

15 A. Yes.

16 Q. Okay. And is it our understanding that there will be
17 pretreatment needed of the mine water before it goes into the
18 reverse osmosis system?

19 A. Yes.

20 Q. Okay. And if you know, why is it going to need
21 pretreatment?

22 A. Well, there's two steps of pretreatment. There will be
23 some treatment at the original AMD sites to cut down on
24 scaling in the pipeline that will deliver the mine water to
25 the centralized facility. And then there will be additional

Rasmussen - Direct

1 pretreatment at the centralized facility to maintain scaling
2 at a reasonable level as far as RO membrane maintenance.

3 THE COURT: What does "scaling" mean?

4 THE WITNESS: Scaling is the -- it's the
5 precipitation of calcium, the magnesium sulfates and
6 carbonates that would come out of the water, plate onto the
7 membrane and make the membrane unusable.

8 BY MR. TEANEY:

9 Q. Okay. And would there also be a third type of
10 pretreatment or filtration used to remove solids?

11 A. Yeah. It's part of a combination. What you are hoping
12 to do is, in this pretreatment step, is to change the
13 chemistry such that these calcium sulfates and carbonates will
14 come out of solution, but then you have to filter that
15 particulate out of the water prior to going to the RO membrane
16 itself.

17 Q. Do you know what type of filtration will be used?

18 A. It may be advanced cold lime-softening, which will be a
19 clarifier. It may be some laminar filtration device. It may
20 be a nanofiltration device.

21 Q. Back to the first step in the pretreatment, which I think
22 you said was going to be at the AMD facilities, what
23 constituents are going to be removed in that step?

24 A. That will be aeration and some pH adjustment. And that's
25 attempting to control the iron hydroxide and to take that out

Rasmussen - Direct

1 of the solution before it gets to the big pipeline.

2 Q. Okay. If you know, is there any need to treat or remove
3 the barium from the water before it reaches the RO system?

4 A. It is -- because of our mine water has so much sulfate
5 and because of the solubility of barium or the, you know, the
6 lack of solubility of barium sulfate, it is not considered an
7 important factor here.

8 Q. I would like to have you authenticate a document and use
9 an exhibit here.

10 This has previously been provided to the Court I believe
11 as Plaintiff's Unique Exhibit 15. I need to get a copy for
12 the witness.

13 THE COURT: All right.

14 MR. TEANEY: I guess as a housekeeping matter, have
15 these been marked for admission? I'm looking to opposing
16 counsel here because they marked them -- I don't know --

17 THE COURT: They have not been marked --

18 MR. TEANEY: Okay.

19 THE COURT: -- as far as I've seen.

20 MR. TEANEY: Okay. Then I would mark this, I guess,
21 as -- I don't know.

22 MR. HURNEY: We tried to number and put stickers on
23 everything. We handled -- they let us know which documents,
24 and we got them all down to the court. As you saw, we tabbed
25 and numbered them all. We could probably re-number them as we

Rasmussen - Direct

1 submit them into evidence.

2 THE COURT: Well --

3 MR. TEANEY: Or we could go with the number.

4 THE COURT: -- is this one of the exhibits unique to
5 plaintiffs?

6 MR. TEANEY: Yes. It should be tab 15.

7 THE COURT: All right.

8 MR. TEANEY: Shall we retain that numbering?

9 THE COURT: Yes.

10 MR. TEANEY: Okay.

11 MR. HURNEY: That's sort of what we were thinking.

12 THE COURT: That's fine. Obviously there might be
13 some overlap here because I think there's at least Joint
14 Exhibit 15 as well.

15 MR. HURNEY: Correct.

16 THE COURT: So why don't we just make this
17 Plaintiff's Exhibit 15. We'll call those that are within the
18 joint exhibits, Joint Exhibit, and then the others, if there's
19 an overlap in numbers, will be Defendant's Exhibit Number,
20 okay --

21 MR. TEANEY: Okay.

22 THE COURT: -- just to keep them straight. This is
23 Plaintiff's 15.

24 MR. TEANEY: This is Plaintiff's 15, that's correct.
25 May I approach?

Rasmussen - Direct

1 THE COURT: You may.

2 MR. TEANEY: Do you need to mark it in addition
3 to --

4 CLERK JUSTICE: No.

5 MR. TEANEY: May I approach the witness?

6 BY MR. TEANEY:

7 Q. Mr. Rasmussen, do you recognize this document?

8 A. Yes, I do.

9 Q. What is this document?

10 A. This is a description of the different flows that could
11 be expected from the underground sources that will go to the
12 centralized treatment system.

13 Q. Okay. I'm looking now at the document that's labeled
14 Table 2. I know you said three mines will provide water. Are
15 there six separate flows, if you would?

16 A. Yes.

17 Q. Okay. And then there's a final column there that says
18 Total Flow Weighted Average. What is your understanding of
19 the numbers in that column?

20 A. What we were -- what we're doing here is since each of
21 the six different sites has a little bit different water
22 chemistry and we were trying to provide our potential vendors
23 with what they would see at the end of the pipeline by the
24 time all of these different sites were mixed together, we were
25 trying to forecast what that number would be.

Rasmussen - Direct

1 Q. And just to -- I believe you mentioned that iron was
2 something you needed to precipitate out; is that correct?

3 A. Yes.

4 Q. And what is the total flow weighted average that you're
5 predicting for iron there?

6 A. This 114.

7 Q. Is it your understanding that these are supposed to --
8 should be -- these units should be milligrams per liter?

9 A. Yeah, milligrams per liter.

10 Q. Is that also known as parts per million?

11 A. Uh-huh.

12 Q. Okay. And for manganese, what is the total flow weighted
13 average you predict?

14 A. 1.72.

15 Q. Okay. And then for -- there's an indication here, Al-d.
16 Do you understand that to be dissolved aluminum, or what would
17 that be?

18 A. Yes, that's dissolved aluminum.

19 Q. And what is the total weighted -- total flow weighted
20 average for aluminum that's predicted?

21 A. That's 4.

22 Q. Okay.

23 A. One point of clarification, if I may.

24 Q. Please.

25 A. These are raw mine water quality. So this is prior to

Rasmussen - Direct

1 any of the site-specific pretreatment that would occur before
2 the water got into the pipeline.

3 Q. I understand. And when was this data compiled?

4 A. This data is actually a sum of water samples that would
5 have been collected, oh, roughly quarterly since about 2008.

6 Q. Okay. And was this data provided to vendors from whom
7 you were seeking quotes or bids?

8 A. Yes. These tables were part of the request for proposal.

9 Q. Why would -- why is it important to provide the vendors
10 with this information?

11 A. Well, this gives them a sense of what they would have to
12 treat -- pretreat in order to effective -- to give us an
13 effective system. It also gives them an idea of what their
14 sludge and evaporate production would be so you can size the
15 landfill that you would need to, you know, safely store the
16 solids that will be produced from the system.

17 Q. You mentioned landfill. So some of the pretreatment
18 waste will be going to a landfill; is that correct?

19 A. Both the -- anticipate that the pretreatment waste, which
20 would be a lime-softening waste, would be filter-pressed and
21 then that would go to landfill, yes.

22 Q. Okay. What percentage or what dollar amount in the
23 cost -- strike that. What is the total cost of the project,
24 if you know?

25 A. Our budgetary cost is, in round numbers, \$200 million.

Rasmussen - Direct

1 Q. Two hundred? And if you broke that down into capital
2 costs, what would that be?

3 A. Well, that's all capital cost.

4 Q. The two hundred is all capital?

5 A. But that is for the complete system. That includes the
6 gathering pipelines, the landfill, the preparation of the
7 construction site, the building of the plant. There's a
8 treated waterline that goes from the plant to a reservoir.

9 Did I miss anything? Those are the big pieces.

10 Q. Do you know how much of that 200 million will be spent on
11 the pretreatment itself?

12 A. No, I don't, because that's wrapped into the overall
13 plant cost.

14 Q. Understood. So after pretreatment, it then goes into the
15 membrane system itself; is that correct?

16 A. After pretreatment, there will be some other
17 constituents, additives, added to the water because it will
18 still form scale, so you'll -- most of the vendors are looking
19 at some kind of anti-scale chemical to be added, and then
20 there will be an additional filtering step even after that,
21 and then it will proceed to the RO membranes.

22 Q. Do you know what type of membranes your RO system will
23 use?

24 A. Not specifically, no.

25 Q. Do you know if they will be spiral-wound?

Rasmussen - Direct

1 A. More than likely, yes.

2 Q. Okay. So after it goes into the membrane system, what
3 comes out of the membrane system?

4 A. The membrane system, for this water we're projecting
5 about a 50/50 split. So 50 percent of the incoming flow will
6 go off as water with very low TDS, very little dissolved
7 solids in it. The other 50 percent will then have to go on to
8 an additional evaporative step to further reduce its volume.

9 Q. Okay. The first 50 percent you described as having very
10 low TDS content, is that what you understand to be called
11 permeate --

12 A. Yes.

13 Q. -- from an RO system? Okay. And is the second half that
14 you described sometimes called concentrate?

15 A. Uh-huh.

16 Q. Okay. Let's start with the concentrate. Where will the
17 concentrate go from the membrane system?

18 A. It will go to an evaporator --

19 Q. Okay.

20 A. -- to remove additional quantity of water. And then the
21 concentrate, if you will, further concentrate from the
22 evaporator will go to a crystallizer which removes an
23 additional amount of water from it, and then that salt
24 material would be taken off to the landfill.

25 Q. And there will have to be an energy source, I guess, to

Rasmussen - Direct

1 evaporate the water?

2 A. Yes.

3 Q. And what energy source do you anticipate using?

4 A. It will most likely be electrical at this point.

5 Q. Electric? Okay. And is the cost of the concentrate
6 treatment and disposal wrapped up in that 200 million figure
7 as well?

8 A. No.

9 Q. No?

10 A. We're estimating right now that the operation of the
11 system will be thirteen to fifteen million dollars a year.

12 Q. Okay. So that's kind of what's called O&M costs?

13 A. Yes.

14 Q. Okay.

15 THE COURT: Is that the operational cost through the
16 full evaporative stage for the half of that that goes
17 through --

18 THE WITNESS: Yes.

19 THE COURT: -- that process? And does that include,
20 then, the disposal of the leftover concentrate that would --

21 THE WITNESS: Yes, and we would use a captive, on-
22 site facility for disposal.

23 THE COURT: Landfill?

24 THE WITNESS: Yeah.

25 BY MR. TEANEY:

Rasmussen - Direct

1 Q. Is the capital cost of the concentrator and the
2 evaporator included in the \$200 million figure --

3 A. Yes.

4 Q. Do you know what percentage that is?

5 A. No, I don't.

6 Q. So that's the disposal of the concentrate. Can you just
7 discharge the permeate right into the stream?

8 A. No. The permeate is actually -- it has too low of a
9 dissolved solids content, so you need to add some salt back to
10 the water to make it dischargeable. We anticipate that that
11 can be accomplished by letting it flow down a limestone riprap
12 channel, allow it to aerate, allow it to pick up some minerals
13 from the limestone before it gets discharged into a surface
14 water line.

15 Q. Is this the least -- would you describe this as the least
16 complex of the steps --

17 A. Yes.

18 Q. -- in the treatment system?

19 A. Yes.

20 Q. Okay. Something that can easily be taken care of?

21 A. Yes.

22 Q. Okay. Are you currently under a consent decree to
23 install this system?

24 A. We have an order that says that we must meet the chloride
25 effluent limits by May of 2013.

Rasmussen - Direct

1 Q. Okay.

2 A. So working backwards from that date, that is -- we -- you
3 know, we're having this plan to put the system in.

4 Q. And are you currently moving through a schedule to do
5 that?

6 A. Yes, we are.

7 Q. Are you on track with that schedule?

8 A. We are currently on track with the schedule, yes.

9 Q. What stage are you at in the schedule today?

10 A. We just received the bids back from the vendors to
11 perform a preliminary engineering step which will at the end
12 of -- towards the end of the year give us 30 to 50 percent
13 drawings and a guaranteed maximum price for the facility.

14 Q. Are you undertaking any steps concurrently with that?

15 A. We're also simultaneously going through several
16 permitting steps, and we're also going through the process to
17 engineer, design, and buy the property for the gathering
18 pipeline.

19 Q. Do you need to modify your NPDES permit to construct this
20 and operate this system?

21 A. Oh, yes. Yes.

22 Q. Have you begun that application process?

23 A. That has begun.

24 Q. Do you know what level of design DEP will require in
25 order to modify the permit?

Rasmussen - Direct

1 A. This facility is going on an existing mining property
2 that has an NPDES permit, but it's obviously significantly
3 different since it is a, you know, basically a closed mine
4 property. So it's a significant change.

5 Q. Do you anticipate that you would need to provide
6 preliminary line drawings or the results of the preliminary
7 engineering that you just discussed? What level of planning
8 do you intend to provide with your NPDES application?

9 A. I'm envisioning -- and I'm not the permitting person.
10 I'm envisioning the line drawing and specifics about what the
11 discharged water quality will be in volume.

12 Q. Okay. Has EPA been involved in this process at all?

13 A. EPA has been involved in the meetings for this, yes.

14 Q. Okay. Let me have just a moment.

15 We've got the DEP and EPA involved here. Who is driving
16 the process from your perspective -- EPA or DEP? -- as far as
17 motivating CONSOL to install this?

18 A. Most -- you know, all of our correspondence and all of
19 our meetings are principally through the West Virginia DEP.
20 I'm not privy to their conversation. So who is driving it, I
21 don't know. Certainly EPA is reviewing everything we're
22 providing.

23 MR. TEANEY: Okay. No further questions, Your
24 Honor.

25 THE COURT: You said that your compliance deadline

Rasmussen - Direct

1 is May of 2013?

2 THE WITNESS: Yes.

3 THE COURT: When was that imposed?

4 THE WITNESS: The first order that referenced that
5 date -- the first unilateral order came out last year. I
6 believe that date was also in the last compliance order that
7 we had. So that would've been in 2008, give or take.

8 THE COURT: So was it in 2008 that DEP first issued
9 an order or compliance order that gave you till May 2013 to be
10 in compliance with the chloride?

11 THE WITNESS: I believe so.

12 MR. TEANEY: May I follow up on that?

13 THE COURT: Sure.

14 BY MR. TEANEY:

15 Q. Subsequent to the 2008 compliance order, at the end of
16 2009 or in early 2010 did DEP revise that or give a
17 supplemental order which required the submission of this RO
18 plan to DEP?

19 A. Correct.

20 Q. Okay. Which -- do you recall whether it was Fall 2009 or
21 early 2010?

22 A. Oh, I'm sorry. I believe it was Fall of 2009 the first
23 order came out.

24 Q. And did CONSOL submit a plan to DEP for this in April of
25 2010?

Rasmussen - Direct/Cross

1 A. Yes.

2 Q. And prior to the submission of that -- strike that.

3 At what point in time did CONSOL begin work on the draft
4 engineering details that were submitted in April 2010?

5 MR. MCLUSKY: Your Honor, I let it go on for a
6 while, but this is all about chloride, this whole treatment
7 gizmo we're talking about now. It has nothing to do with
8 selenium.

9 THE COURT: All right. I agree, Mr. Teaney.

10 MR. TEANEY: All right.

11 THE COURT: All right.

12 MR. TEANEY: I have no further questions.

13 THE COURT: All right. Cross, Mr. McLusky?

14 CROSS EXAMINATION

15 BY MR. MCLUSKY:

16 Q. Mr. Rasmussen, good afternoon. You testified about
17 Plaintiff's Exhibit Number 15 a moment ago; is that correct?

18 A. Yes.

19 Q. And you said this is raw water data, is that correct, or
20 untreated --

21 A. The chemistry on Table 2 is raw water quality.

22 Q. Okay. And by that raw water quality, you mean water that
23 is coming directly out of the mine before any type of
24 treatment?

25 A. Yes.

Rasmussen - Cross

1 Q. But you have existing acid mine drainage treatment plants
2 in place that is treating some of that water on Table 2, do
3 you not?

4 A. Yes.

5 Q. And those treatment plants will continue to be used as
6 part of the system that you're going to put in place to take
7 care of chlorides; isn't that right?

8 A. Yes.

9 Q. So whoever is going to design and construct a treatment
10 facility for you won't have to deal with the raw water. They
11 will deal with the water that comes out of the acid mine
12 drainage -- acid mine drainage treatment plants after
13 treatment; isn't that right?

14 A. Correct.

15 Q. So the water quality in Table 2 couldn't be picked up by
16 an expert here on the other side and say this is the water
17 they're going to have to deal with at the reverse osmosis
18 plant.

19 A. Correct.

20 Q. Thank you. This chlorides treatment plant in Northern
21 West Virginia, I think you said you've been dealing with this
22 issue since 2002?

23 A. That was my recollection. That's when the first order
24 came out regarding, you know, investigation and potential
25 remediation of chlorides.

Rasmussen - Cross

1 Q. And you all actually submitted some type of technological
2 report, technology report, to DEP as early as 2003 on
3 treatment type alternatives, didn't you?

4 A. Correct.

5 Q. So you've been working on this for already eight years.

6 A. Correct.

7 Q. Just to be clear, neither one of these plants -- that is,
8 you have one in Virginia. Was it --

9 A. Buchanan.

10 Q. Buchanan, Virginia, or Buckhannon? Is it Buchanan?

11 A. Buchanan.

12 Q. Buchanan. Okay. Nor the one in Northern West Virginia
13 are designed to treat for selenium; is that fair?

14 A. That is correct.

15 Q. Both are designed to treat for chlorides.

16 A. Yes.

17 Q. Neither one is yet operational. Is that a fair
18 statement?

19 A. Yes.

20 Q. The one in Virginia is nearing the end of construction
21 but has not yet been turned on.

22 A. Correct.

23 Q. As has it taken longer than the company envisioned to
24 construct that?

25 A. I think the anticipated schedule for Buchanan was 18

Rasmussen - Cross

1 months.

2 Q. From --

3 A. From start to commissioning.

4 Q. Okay. And I know you weren't the person deposed, but my
5 recollection of Mr. Owsiany was that it's already been under
6 construction for 23 or 24 months.

7 A. Yes, coming up on -- it's 23 months now. Probably 24
8 months to -- to start commissioning.

9 Q. All right. So five or six months past the date you
10 anticipated it would be operational.

11 A. Correct.

12 Q. Despite your best efforts to meet the 18 months.

13 A. Yes.

14 Q. And then the Northern West Virginia plant, you haven't
15 even started to construct that yet.

16 A. Correct.

17 Q. Both these facilities are going to address underground
18 mine discharge water?

19 A. Correct.

20 Q. The flows from those underground mines at the two
21 locations, that is, the Virginia and Northern West Virginia,
22 are those controllable by you underground? That is, you don't
23 need the equalization capacity on the surface?

24 A. Yes, those are -- I'm thinking because they're a
25 different situation. Some of the mines are protecting flooded

Rasmussen - Cross

1 mines and protection of active works, and some of them are
2 active works. The majority of them are controllable at least
3 to some degree, yeah.

4 Q. And as I understand it, they're both designed to avoid
5 treating surface water, surface runoff water.

6 A. Correct.

7 Q. Would you say that the flows, the variability of flows at
8 a surface mine would be far different than the variability of
9 flows from your underground mines that you're going to treat?

10 A. Yes.

11 Q. They would be far greater, I assume, at the surface mine?

12 A. The variation would be, yes.

13 Q. If you know, does that play any role in the ability of
14 the technology to operate?

15 A. My understanding from talking with the technology vendors
16 is you can -- a given RO plant, you can give -- well, back up.
17 An RO evaporation plant in total, you might be able to turn
18 that plant down, if you will, 30 percent, give or take. You
19 could operate a plant at 70 percent of its design flow.
20 Contrarily you cannot turn them up. The design flow is the
21 flow.

22 THE COURT: What do you mean, that they can't
23 accommodate greater than expected flow?

24 THE WITNESS: Correct.

25 BY MR. MCLUSKY:

Rasmussen - Cross

1 Q. So if you had a 10-year, 24-hour storm event, you would
2 have to design it for something close to that if that's what
3 you're going to have to treat.

4 A. If that's what you have to capture. You have to design
5 for your -- to your largest expected flow.

6 Q. And your largest expected flow at Buchanan, Virginia, I
7 understand is 1600 gallons per minute?

8 A. Correct.

9 Q. And your largest expected flow in Northern West Virginia
10 is on the order of 3500 gallons per minute?

11 A. Correct.

12 Q. Has CONSOL ever designed or constructed a reverse osmosis
13 plant for treatment of water at a surface mine?

14 A. No.

15 Q. Has it ever even considered it?

16 A. Not to my knowledge.

17 Q. Is the water quality at the two facilities, does it stay
18 relatively constant over time, if you know?

19 A. Buchanan stays relatively constant. The reason we went
20 through this exercise with these several sources is to give
21 the vendors an idea of the variation between low flow and high
22 flow because there is some variation in flow. And looking at
23 that, off the top of my head I'd say that the changes in the
24 major constituents from low flow to high flow, plus/minus
25 10 percent, 15 percent at the most; my guess.

Rasmussen - Cross

1 Q. And the variation in flows, what percent would that be
2 from low to high? Single digit?

3 A. Yes, probably 10 percent, 12 percent maybe.

4 THE COURT: Well, by that you mean that the highest
5 flow would be no more than maybe 10 percent above the low
6 flow?

7 THE WITNESS: Actually if you picked your middle
8 median flow and you went 10 percent on either side.

9 THE COURT: All right.

10 BY MR. MCLUSKY:

11 Q. Mr. Rasmussen, so I understand, both Buchanan and the
12 Northern West Virginia facility are active mines?

13 A. Yes.

14 Q. And these treatment plants will facilitate ongoing mining
15 in these active mines?

16 A. Yes.

17 Q. And may facilitate expansions of those mines into
18 previously unmined areas?

19 A. Yes.

20 Q. Any idea of the -- you got -- how many coal mines in
21 Northern West Virginia are feeding the proposed treatment
22 plant there?

23 A. Three.

24 Q. Three? And they're all underground mines, right?

25 A. Yes.

Rasmussen - Cross

1 Q. Are they longwall mines?

2 A. They're all longwall.

3 Q. Rough idea of the production, the current production up
4 there annually?

5 A. The three of them probably average three to five million
6 tons per year.

7 Q. All right. So could see 15 million tons a year coming
8 off these three mines?

9 A. Yes.

10 Q. And Buchanan, Virginia, a little smaller overall?

11 A. No, it's actually larger. I don't know exactly, but I'm
12 recalling roughly 6 million tons.

13 Q. Okay. Is it fair to say, then, that the cost of the
14 plants at these two locations that you've testified about will
15 be paid for by active or ongoing mining operations that will
16 actually use these treatment plants?

17 A. That's my understanding.

18 MR. MCLUSKY: Thank you. I think that's all I have,
19 Your Honor.

20 THE COURT: All right. Any redirect?

21 MR. TEANEY: Briefly, Your Honor.

22 REDIRECT EXAMINATION

23 BY MR. TEANEY:

24 Q. Mr. Rasmussen, will you -- you and Mr. McLusky engaged on
25 the AMD pretreatment that's out there. Will there be

Rasmussen - Redirect

1 additional pretreatment needed before -- to be constructed
2 before the water is sent to the membranes?

3 A. The existing pretreatment systems will suffice, with the
4 exception of two locations. One of the locations, there are
5 three underground sources coming to that current AMD treatment
6 plant. Only one of those underground sources has high
7 chlorides in it. So we will build an additional plant to
8 split that waste -- that underground stream off and treat it
9 separately.

10 And at our Sugar Run facility, the underground mine water
11 has a significant amount of fines in it that need to be
12 removed prior to putting it in the gathering pipeline. So
13 that will be an additional construct.

14 Q. And there still needs to be the clarification and
15 filtration constructed?

16 A. There will be a new clarifier at the one site where we
17 split off. You know, essentially the fines removal at Sugar
18 Run will be a clarification step.

19 Q. Okay. You discussed the schedule at the Buchanan
20 facility. Is there any court order or any particular hurry-up
21 motivating the construction of the Buchanan facility?

22 A. The Buchanan water is needed for the prep plant. The
23 Buchanan prep plant will run short of water in the summertime.
24 There is a managed discharge that is operating in the Buchanan
25 facility. In order to operate a managed discharge, you need

Rasmussen - Redirect

1 the storage capacity. And my understanding of the legal cases
2 that were involved, that ability to store water was in doubt
3 and still is in doubt. So the RO system is necessary to
4 supplement the managed discharge.

5 Q. Are you moving faster on the Northern West Virginia plant
6 or is it on an accelerated schedule compared to the Buchanan
7 facility?

8 A. It will be an accelerated schedule, yes.

9 Q. Okay. And finally on the varying flow issue, will CONSOL
10 be equalizing the flow through a retention structure prior to
11 sending it to the RO facility?

12 A. There will be an equalization basin or series of tanks at
13 the -- our facility, yes.

14 Q. Have those been constructed yet?

15 A. No.

16 MR. TEANEY: Okay. Thank you. Nothing further,
17 Your Honor.

18 THE COURT: All right. Anything else?

19 Thank you, sir. You may step down.

20 MR. TEANEY: Your Honor, plaintiffs would ask, since
21 Mr. Rasmussen is subject to a subpoena, that he be excused
22 from being a -- excused from service as a witness so that he
23 can return to Pittsburgh.

24 THE COURT: All right. Any objection to that?

25 MR. MCLUSKY: No, Your Honor.

1 THE COURT: He's excused. Thank you, sir.

2 MR. TEANEY: And also I've been told that I
3 neglected to move for the admission of Plaintiff's 15.

4 THE COURT: All right. Is there objection?

5 MR. MCLUSKY: No objection, although I'm not sure
6 what the relevance is now after the cross-examination.

7 THE COURT: Well, I'm not sure if that's an
8 objection, but I'll deny it. It's admitted.

9 MR. TEANEY: Thank you, Your Honor.

10 THE COURT: All right. Call your next witness.

11 MR. LOVETT: John McHale.

12 THE COURT: Mr. McHale, if you'll step up here, my
13 clerk is going to administer the oath to you.

14 JOHN MCHALE, PLAINTIFF'S WITNESS, SWORN

15 DIRECT EXAMINATION

16 BY MR. LOVETT:

17 Q. Good afternoon, Mr. McHale.

18 A. Good afternoon.

19 Q. Would you state your name, please.

20 A. John McHale.

21 Q. And what is your -- by whom are you employed?

22 A. Patriot Coal Corporation.

23 Q. What's your current title?

24 A. Vice-president, environmental engineering and compliance.

25 Q. And how long have you worked for Patriot?

McHale - Direct

1 A. Since July of 2009.

2 Q. For whom did you work before?

3 A. Magnum Coal Company.

4 Q. And Magnum was acquired by Patriot in 2009?

5 A. That's correct.

6 Q. How long have you been vice-president?

7 A. Excuse me. It was acquired in 2008.

8 Q. 2008. I'm sorry.

9 A. Yes, sir.

10 Q. How long have you held your current job?

11 A. Since July of 2009.

12 Q. And are you the person within Patriot that is most
13 responsible for selenium compliance issues?

14 A. The responsibility for selenium compliance is actually at
15 the operations. I am the person responsible for making sure
16 the operations have all the support they need and everything
17 to achieve that compliance.

18 Q. And who heads up that effort?

19 A. Excuse me?

20 Q. Who heads up the effort to achieve compliance?

21 A. It's headed up from the corporate level.

22 Q. Okay. And who would that be?

23 A. And that would be me.

24 Q. Okay. Are you involved on a regular basis in selenium
25 compliance issues?

McHale - Direct

1 A. Yes, I am.

2 Q. And before you took your current job, were you even more
3 involved with selenium compliance issues?

4 A. Yeah, more directly involved.

5 Q. With Patriot?

6 A. Yes.

7 Q. And before that with Magnum?

8 A. Yes.

9 Q. What percentage of your time would you say you spent on
10 selenium compliance issues in your previous job?

11 A. In the neighborhood of 60 percent or more.

12 Q. And in your current job?

13 A. Probably 25 to 30 percent of direct involvement.

14 Q. Now, you testified I think in the previous hearing that
15 we had on this issue in July of 2008, did you not?

16 A. Yes, I did.

17 Q. Okay. And were you here for that whole hearing?

18 A. Yes, I was.

19 Q. And as a result of that hearing and the order that came
20 from it, did you hire CH2M Hill as a consultant?

21 A. Yes, I did.

22 Q. Were you the person responsible for hiring CH2M Hill
23 within Patriot?

24 A. Yes.

25 Q. How did you choose CH2M Hill?

McHale - Direct

1 A. I had researched available environmental engineering
2 firms. CH2M Hill was very prominent in the business and had a
3 very good reputation, and I basically went to their website
4 and made contact with them.

5 Q. Okay. Who did you make contact with at CH2M Hill?

6 A. I made a phone call to one of their regional office
7 numbers and explained my situation and left a message.

8 Q. And when was that?

9 A. That was, as near as I can place it, July 9th.

10 Q. And who did you finally get in touch with at CH2M Hill?

11 A. I was contacted by Tom Sandy.

12 Q. Okay. And that was in July or August?

13 A. That was the following -- on July 14th I think he called
14 me.

15 Q. Mr. Sandy is, in fact, the person you continue to work
16 with today, right?

17 A. We do.

18 Q. And when -- at the time that you talked to Mr. Sandy, was
19 there a court order requiring compliance with the permit limit
20 already in place?

21 A. At the time I talked to Mr. Sandy, there was a court
22 order requiring a status report back to the Court by
23 July 24th.

24 Q. And that was all there was?

25 A. At that point.

McHale - Direct

1 Q. And is that what you hired CH2M Hill to do, to help you
2 with the status report?

3 A. No.

4 Q. Okay. What did you hire CH2M Hill to do?

5 A. Explained to CH2M Hill the history of the situation going
6 back to the May order to comply and explained to him that we
7 would need someone to evaluate available selenium treatment
8 options and to help us select.

9 Q. Did you believe at the time you were going to have to
10 meet a certain compliance date with your permit?

11 A. Yes.

12 Q. And what was that date?

13 A. We did not know at that point.

14 MR. LOVETT: Okay. Your Honor, this gets more
15 complicated, I'm afraid, the exhibit listing. We had listed
16 on our original list this next exhibit as Joint 28. However,
17 Mr. Hurney provided us just this morning I guess with the same
18 exhibit labeled Exhibit 17.

19 May we try to work this out so that we don't get
20 confused?

21 THE COURT: Yes, please do. Let's not get off on
22 the wrong foot.

23 MR. HURNEY: Your Honor, I apologize. Every time I
24 try to pre-mark documents, it never works.

25 MR. LOVETT: We appreciate Mr. Hurney's efforts

McHale - Direct

1 here. He did this for us.

2 (Counsel conferred privately off the record.)

3 MR. HURNEY: Your Honor, the numbers that are used
4 are consistent with what is submitted to the Court. I'm
5 cleaning up exhibits here and there. We'll fix it.

6 THE COURT: All right. So this is Joint Exhibit --

7 MR. LOVETT: This is Joint Exhibit 17, and we may
8 have this confusion, Your Honor, throughout this examination,
9 and I apologize and we will get it worked out by tomorrow.

10 BY MR. LOVETT:

11 Q. Mr. McHale, have you seen this document before? It is
12 Joint 17.

13 A. Yes.

14 Q. And what is it?

15 A. It is the Phase I report that CH2M Hill was hired to do.

16 Q. So this is what you hired CH2M Hill to do in July.

17 A. Yes.

18 Q. And it was produced on August 12th, correct?

19 A. Yes. Actually this is a revision to the first report,
20 which was on August 6th.

21 Q. Okay. So this is the final report and/or revision?

22 A. Well, there were two reports. They revised the first
23 report. It was not a draft. It was also a final report.

24 Q. And this was approximately two years ago?

25 A. Yes.

McHale - Direct

1 Q. I turn your attention to page 6. Now, as I understand
2 it, these were recommendations from CH2M Hill in this report,
3 correct?

4 A. On page 6?

5 Q. Well, generally -- let me just start again, if I may.
6 What was the purpose of the report?

7 A. This was basically a screening analysis to review
8 available technologies and to winnow it down to a, you know,
9 finite number, three to five, say, of technologies that they
10 would recommend for further evaluation.

11 Q. Okay. So this was just a -- these were preliminary tasks
12 in preparation for construction of a facility; is that right?

13 A. These were preliminary tasks for selection of a
14 technology.

15 Q. Because you hadn't at that time contemplated actually
16 constructing a facility, right? You hadn't as of two years
17 ago even contemplated actually constructing a system.

18 A. No, we knew that we would have to build systems. We were
19 currently involved in installing base systems on certain
20 technology.

21 Q. Okay. On page 6, I notice Task 8. Do you see that?

22 A. Yes.

23 Q. It's Preliminary Engineering of Selected Alternatives.

24 A. Yes.

25 Q. Have those tasks been completed to date?

McHale - Direct

1 A. Yes. That was a Phase II report.

2 Q. Task 8 has been done by Patriot?

3 A. No, I'm sorry. What was done, that was Tasks 1 through
4 6 --

5 Q. Right.

6 A. -- because the report, Tasks 1 through 6 did not lead to
7 sufficient information to select an alternative.

8 Q. So when did you make that determination?

9 A. What determination?

10 Q. That Tasks 1 through 6 yielded no appropriate technology.

11 A. Well, there were recommendations out of that report, out
12 of Task 6 in January of 2009 that made certain recommendations
13 to proceed further before we selected --

14 Q. The January 2009 reports, were there three of them from
15 CH2M Hill?

16 A. January 2009 was the last in the series. There were --
17 upon completion of this report, they went on to perform a
18 series of tasks, 1 through 6, which took place in basically
19 the September through -- they were published incrementally
20 from September through January.

21 Q. So the January 2009 report that listed alternative
22 technologies --

23 A. Right.

24 Q. -- is your testimony that because that report didn't
25 choose a particular technology, you didn't proceed to Task 7?

McHale - Direct

1 A. Not at that time.

2 Q. Well, have you yet?

3 A. We have just completed, you know, the final
4 recommendation from that January report, and we're at a
5 position now where we're soliciting additional cost estimates
6 and a proposal from our consultant to proceed with the
7 selected alternative.

8 Q. You still haven't completed Task 8, the preliminary
9 engineering of selected alternative --

10 A. No.

11 Q. -- right?

12 A. No.

13 Q. And you're testifying that that is because the
14 January 2009 report didn't choose a particular alternative?

15 A. It didn't show a clear-cut alternative that we should
16 select.

17 Q. Did you ask CH2M Hill which among the technologies
18 discussed in the 2009 report would be the best one if you had
19 to choose one?

20 A. The report recommended further -- the report recommended
21 a further analysis and evaluation of two alternatives.

22 Q. Did you tell CH2M Hill that -- strike that.

23 Your Honor, we have some exhibits that were just provided
24 this morning by -- or I guess yesterday evening by defendants,
25 and we're going to use those next. They're not marked yet.

McHale - Direct

1 THE COURT: All right. Let's go ahead and mark
2 those. Are you going to add those to the list of plaintiff's
3 exhibits?

4 MR. LOVETT: Well, it might mess up the ordering if
5 they're already ordered. Why don't we --

6 MR. TEANEY: We could use letters.

7 MR. LOVETT: Yeah, we could use plaintiff's letters
8 for --

9 THE COURT: Well, are they already marked as
10 different exhibits in this?

11 MR. LOVETT: No, Your Honor. We didn't see these
12 until last night, so they weren't submitted to the Court.

13 THE COURT: All right. Well, I think probably the
14 easiest thing is to pick up the last -- the next number from
15 plaintiff's proposed exhibits --

16 MR. LOVETT: Okay.

17 THE COURT: -- and use that.

18 MR. LOVETT: Let me see if I can find out what the
19 last number is.

20 THE COURT: Go ahead.

21 MR. LOVETT: The last number is 57. So there are
22 two here. That will be 58 and 59. May I approach?

23 THE COURT: You may.

24 MR. LOVETT: 58 is a -- starts with a January 6
25 email, and 59 is a January 7th letter.

McHale - Direct

1 BY MR. LOVETT:

2 Q. Mr. McHale, I'll give you 58, which I believe is
3 January 6th, and 59, which is January 7th.

4 Your Honor, do you need a copy?

5 THE COURT: No, that's all right.

6 BY MR. LOVETT:

7 Q. Now, let's turn to the January 6th document. As I
8 understand it, there are some track changes to a draft report
9 from Potesta & Associates in this document. Is that your
10 understanding as well?

11 A. Yes.

12 Q. And did you create those track changes?

13 A. Yes.

14 Q. What is this document you were editing? What is the
15 document?

16 A. This was a document that was submitted to my supervisor,
17 and he forwarded it on to me for my comments.

18 Q. And your supervisor at the time was James Crawford?

19 A. Yes.

20 Q. Mr. Crawford still employed by Patriot?

21 A. No, he's retired.

22 Q. And you have his job now?

23 A. Yes.

24 Q. So at the time, he was your supervisor and he asked you
25 to comment on the report; is that right?

McHale - Direct

1 A. Yes.

2 Q. And this is a report from Potesta & Associates?

3 A. Yes, it is.

4 Q. And what is Potesta?

5 A. Potesta is an engineering consulting firm that's located
6 in Charleston.

7 Q. So you were -- and there are several iterations of the
8 Potesta report over the next several months; is that right?

9 A. Yes, there were.

10 Q. And were you involved in that process generally, as you
11 were here?

12 A. Only to the extent that I was asked to respond by my
13 supervisor to things. I was not directly in contact or
14 communication with Potesta concerning this.

15 Q. And why was Potesta hired?

16 A. My understanding was to review the Patriot's selenium
17 liability cost estimates.

18 Q. For whom? Did an auditor -- was there an auditor that
19 wanted to understand Patriot's --

20 A. As it says in the first paragraph, it was to be used for
21 purchase accounting.

22 Q. Well, do you know if a particular auditor had asked for
23 this kind of information?

24 A. I assume they were doing -- I assumed at some point they
25 would have to have, you know, have it supplied to the

McHale - Direct

1 auditors, yes, sir.

2 Q. But you don't know that -- well, let me strike that. Was
3 Ernst & Young auditing Patriot's books at the time?

4 A. I don't know.

5 Q. You don't know?

6 A. I don't know if they were at that time.

7 Q. No one said to you, "We've got to get this report done to
8 show to Ernst & Young Patriot's liabilities for selenium"?

9 A. No, they did not tell me it had to be done for our
10 auditors.

11 Q. Okay. Let's turn to the January 7th document, which I
12 believe is the final report from the one that you edited on
13 the 6th; is that right?

14 A. I think this was the next in the series. There were
15 subsequent versions of this.

16 Q. Well, there was nothing between the 6th and the 7th, was
17 there?

18 A. Yes, but I wouldn't call it a final.

19 Q. Okay. It's signed by the -- it's submitted and signed by
20 Potesta & Associates staff, isn't it?

21 A. Yes, it is.

22 Q. Why would you not say it was the final one? It doesn't
23 say Draft. It appears to be a final report, doesn't it?

24 A. Yes, I assume. My assumption is that Potesta meant it to
25 be a final version.

McHale - Direct

1 Q. And on page 6, the discussion and recommendations
2 section, do you see that?

3 A. Uh-huh.

4 Q. The second paragraph says, "Potesta agrees with the
5 selection of ABMet biological and ZVI chemical treatment
6 systems. Potesta believes that Patriot is using the currently
7 best available treatment technology."

8 Do you see that?

9 A. Yes, I do.

10 Q. Okay. So at the time Potesta included among the best
11 available technology ABMet; is that right?

12 A. Yes. That's what it says here.

13 MR. LOVETT: May I approach?

14 THE COURT: You may.

15 BY MR. LOVETT:

16 Q. I'll show you what's marked as Plaintiff's 16. And is
17 that a January 20th letter from Potesta to Mr. Crawford?

18 A. Yes.

19 Q. And, again, this does say Draft, doesn't it?

20 A. Yes, it does.

21 Q. So this is a follow-up to the previous report of
22 January 6th or 7th?

23 A. I assume, yes.

24 Q. Okay. Now, I'll turn your attention to page 2, Average
25 Flow Rate Per Outlet section.

McHale - Direct

1 A. Yes.

2 Q. And it's estimating -- well, tell me, how did -- for the
3 purposes of this report, how did Patriot and Potesta determine
4 the flow at all of Patriot's outfalls that it would have to
5 treat?

6 A. Well, it states in the report that Potesta conducted
7 field reconnaissance at Hobet Mining and determined that
8 the -- you know, determined the maximum average flow rates
9 from the DMR reports, and that's what they utilized.

10 Q. So you didn't have any flow meters out there, right?

11 A. I don't know if they used flow meters or not.

12 Q. You don't know? Do you have flow meters --

13 A. I didn't do this. (Indicating) It's very possible that
14 Potesta field staff had flow meters with them.

15 Q. How many outlets are there?

16 A. At Hobet?

17 Q. No, at the Patriot operations that are being -- well, I
18 guess they were Magnum at the time. At the Magnum operations
19 that were being analyzed.

20 A. What it says here, this was based on the outlets at
21 Hobet.

22 Q. Okay. Does Hobet have 72 outlets requiring treatment?

23 THE REPORTER: I'm sorry. Seventy-two?

24 BY MR. LOVETT:

25 Q. Does Hobet have 72 outlets requiring --

McHale - Direct

1 A. No, they have in the neighborhood of 50, plus or minus.

2 Q. Well, doesn't the last sentence say in that section with
3 72 outlets requiring treatment at a flow rate of 195 gallons
4 per minute, the total water flow rate treatment required for
5 Magnum operations is 14,040 gallons per minute?

6 A. Yeah. I'm just reading what they said is their
7 methodology. They determined the average flows at Hobet and
8 applied it to the 72 outlets it looks like.

9 Q. Okay. Now I understand. In order to determine -- in
10 order to determine the entire flow at the -- all Patriot
11 operations, they used Hobet as, in essence, a model and
12 extrapolated from that to the other outfalls; is that right?

13 A. That's all I can --

14 MR. HURNEY: Your Honor, I object. Two reasons.
15 One is he's handing this report to this witness and asking him
16 to speculate what Potesta meant or what Potesta was doing.
17 He's just asking the witness to read a document, whether he
18 saw it or not.

19 The second is I fail to see the relevancy. We are here
20 on two issues; were we in contempt for failure to comply with
21 the order which required us to be in compliance with our NPDES
22 permits by April 5, 2010 on the three Apogee outlets. And the
23 second issue relates to your consideration of appropriate
24 injunctive relief at Hobet 22, the single outlet. And the
25 third issue is our case for additional time.

McHale - Direct

1 I don't see how this is even remotely relevant, you know,
2 what was calculated by Potesta in terms of a report to the
3 auditors.

4 THE COURT: Well, Mr. Lovett?

5 MR. LOVETT: It's completely relevant, Your Honor,
6 because this shows that Potesta underestimated its
7 liability -- I mean, excuse me, Patriot -- Magnum at the time
8 and Patriot still -- was underestimating its liabilities as
9 far back as January of 2009, continues to do so to this date
10 and I believe shows that Patriot never intended to comply with
11 its permit limits at Apogee or Hobet.

12 THE COURT: All right. I'll allow you to pursue
13 that argument. It's not clear to me how well you expect this
14 witness to know about the methodology used by Potesta to make
15 these calculations.

16 MR. LOVETT: I was trying to avoid having him read
17 it. So I can just read from the document --

18 THE COURT: All right.

19 MR. LOVETT: -- myself and do that if you'd like,
20 Your Honor.

21 BY MR. LOVETT:

22 Q. Okay. What Potesta did -- and you read these reports as
23 they came out, didn't you?

24 A. I don't know that I saw all of them. I did see several
25 of them.

McHale - Direct

1 Q. Well, were you in charge, I think you just testified, had
2 spent 60 or 70 percent of your time and headed the day-to-day
3 compliance efforts of Magnum, right?

4 A. This particular exercise was handled by my supervisor,
5 and he asked for my input at certain times.

6 Q. So the Potesta report determines that at 72 outfalls at
7 Patriot, or at Magnum, there were 14,040 gallons per minute
8 that needed to be treated; is that right?

9 A. Yeah, that's what it says.

10 Q. Then we'll turn to the last page, which is page 4, where
11 it estimates a cost for that treatment. Do you see that?

12 A. Yes.

13 Q. And the cost is \$219,304,800 as present worth cost?

14 A. Yes, that's what it states here.

15 Q. Okay. Do you agree that the 14,040 gallons per minute
16 was the -- is the appropriate flow number to use for the 72
17 outfalls?

18 A. I agree that that represents the flows that were reported
19 on the DMRs that they used for this.

20 Q. Well, you said in your deposition you thought it was a
21 reasonable number. Do you still say that?

22 A. It probably is a reasonable number for the base
23 somewhere, the base flow, or slightly higher.

24 Q. Explain to the Court and to me what the base flow is.

25 A. The base flow would be the dry weather flow.

McHale - Direct

1 Q. So it's flow that comes mostly from groundwater without
2 rainwater contribution.

3 A. Yeah, that would be the definition.

4 MR. LOVETT: May I approach?

5 THE COURT: Yes, you may.

6 BY MR. LOVETT:

7 Q. This exhibit is not marked. It didn't make it into the
8 book. I don't know why. We can ask defendants. It may be --
9 (Counsel conferred privately off the record.)

10 THE COURT: I'm going to ask, Counsel, if you talk
11 at the table or while you're moving around, my court reporter
12 can't pick it up.

13 MR. LOVETT: I'm sorry. So we would mark it as
14 Plaintiff's 60.

15 BY MR. LOVETT:

16 Q. Now, is this another Potesta iteration of the report?

17 A. Yes, it appears to be.

18 Q. Okay. And how did it determine -- how did this
19 July 29th report determine how much flow Patriot had as a
20 liability for selenium?

21 MR. HURNEY: Your Honor, I make the same objection I
22 made before.

23 THE COURT: Overruled.

24 THE WITNESS: I believe this was a verification of
25 the treatment cost that Patriot planned to expend.

McHale - Direct

1 BY MR. LOVETT:

2 Q. Right. How did it determine the flow for the estimate in
3 this final report? I turn your attention to Table 3, which is
4 at the back, and I think it says that at all 72 outlets it was
5 going to use two trains of three tanks each which would treat
6 24 gallons per minute at every outfall; is that right?

7 A. Yes, that is what's on this table, yes.

8 Q. So instead of marking Patriot's liability at
9 14,040 gallons per minute, it now marks it at 24 gallons at
10 each outfall for 72 outfalls, right?

11 A. That looks to be the case.

12 Q. That's quite a drop in the estimation of flow liability,
13 isn't it?

14 A. This was an analysis of a schedule of expenditures by
15 Patriot. I think the starting point was a spreadsheet that
16 showed a schedule over time, and they had analyzed that. I
17 don't think the assumptions were necessarily the driving
18 forces of the analysis.

19 Q. Well, this isn't a schedule just for -- this is supposed
20 to be a schedule for Potesta's liability for treatment of
21 selenium at its 72 outfalls, isn't it?

22 THE COURT: You said Potesta's. You mean --

23 BY MR. LOVETT:

24 Q. Potesta's. This is supposed to be Potesta's summary of
25 Patriot's or maybe Magnum's liability -- I don't know if it

McHale - Direct

1 was Magnum or Patriot at this time -- but either Magnum's or
2 Patriot's liability at all 72 outfalls.

3 A. As I read it, it is -- I didn't instruct them, so I don't
4 know what they were to be doing, but it is basically a --
5 looks to me to be a net present value analysis of a schedule
6 that Patriot has applied to --

7 MR. LOVETT: May I approach?

8 THE COURT: You may.

9 MR. LOVETT: Plaintiff's Exhibit 17.

10 THE COURT: May I see the one you were looking at?

11 MR. LOVETT: Did you not get one, Your Honor? I
12 have an extra one.

13 THE COURT: This is Plaintiff's Exhibit 60?

14 MR. LOVETT: 60.

15 THE COURT: And it was not part of the package, so
16 it needs to be marked.

17 MR. LOVETT: I'm sorry. I thought I gave one to --
18 that's the July 29th letter, right?

19 THE COURT: All right. It's marked as Plaintiff's
20 60.

21 MR. LOVETT: Here's another copy, Your Honor. I'll
22 give it to the witness since you have one.

23 BY MR. LOVETT:

24 Q. I've just given you Exhibit -- Plaintiff's Exhibit 17.
25 Have you seen that?

McHale - Direct

1 A. Yes, I have.

2 Q. What is it?

3 A. It's an email from me to Lawrence Bell.

4 Q. And who's that?

5 A. He is -- works in our accounting --

6 Q. Okay. Is this --

7 A. -- department.

8 Q. Let's start at the back. Is this because Ernst & Young
9 has questions about Patriot's estimation of its liability?

10 A. Yes, I believe so.

11 Q. Okay. And turn your attention to the third page here.

12 It's not numbered. The top says Methodology Related Questions
13 & Supports -- & Support. Do you see that page?

14 A. Yes.

15 Q. The third paragraph. Now, this is, as I understand it,
16 questions asked by Ernst & Young, the auditor, and the
17 question is -- tell me if I'm wrong.

18 The question is, "Can you provide your basis of
19 professional judgment for assuming that the portfolio of
20 outfalls requiring ongoing treatment will likely require, on
21 average, 6 tanks?"

22 Is that a question from the auditor?

23 MR. HURNEY: Objection, Your Honor. I don't know
24 how this witness can --

25 MR. LOVETT: Well, John McHale gives the answer to

McHale - Direct

1 it in the next sentence.

2 THE COURT: Overruled. Is this Plaintiff's
3 Exhibit 17?

4 MR. LOVETT: Yes. I'm sorry. This one is 17.

5 CLERK JUSTICE: Which is different than Joint.

6 THE COURT: Right. This is P17, not J17.

7 MR. LOVETT: Plaintiff's.

8 CLERK JUSTICE: I need a copy of that.

9 MR. LOVETT: It should have been submitted with
10 the --

11 THE COURT: All right. So we have a copy of that.

12 MR. LOVETT: Anything up to 58 should already be
13 with the Court.

14 THE COURT: Okay. So we're going to use ours.

15 MR. LOVETT: Is this okay?

16 THE COURT: This one is marked, Terry.

17 MR. LOVETT: How bad would it be if we hadn't tried
18 to simplify it before trial?

19 BY MR. LOVETT:

20 Q. Anyway, is that a question asked by the auditor?

21 A. Yes.

22 Q. Is that -- then it says "John McHale." Is that your
23 response that you proposed?

24 A. Yes, I think it is. Yeah.

25 Q. Okay. And as I -- what do you say? So that the auditor

McHale - Direct

1 asks you if you can provide the basis of your professional
2 judgment for assuming that the portfolio of outlets requiring
3 ongoing treatment will most likely require, on average, six
4 tanks, how do you respond to that?

5 A. Do you want me to read it off?

6 Q. Well, you don't have to read it. Just --

7 A. I responded that the systems are modular in design,
8 consisting of individual treatment trains that will reduce the
9 selenium concentration for a fixed flow to compliant levels.
10 The average selenium concentrations of the untreated water are
11 approximately 20 to 30 parts per billion. In order to bring
12 this concentration to a compliant level, a three-tank
13 treatment train, i.e., three tanks arranged in series, is
14 required to treat a flow of approximately 12 gallons per
15 minute. Each tank or stage in the train will reduce the
16 concentration approximately 40 percent. The six-tank system
17 allows for installation of two treatment trains which allow
18 for variation of flow rates and other factors between two
19 streams of water being treated in order to gain additional
20 data for evaluation. It also helps to evaluate the modular
21 design approach.

22 Q. Okay. So these are trains -- are these ZVI treatment
23 trains?

24 A. Yes.

25 Q. Okay. So you've got -- you're estimating the cost for

McHale - Direct

1 putting six tanks at all the seventy-two outfalls, right?

2 A. Correct.

3 Q. And that would treat how many gallons at each outfall?

4 A. Roughly 24 --

5 Q. Twenty-four?

6 A. -- gallons per minute.

7 Q. Twenty-four gallons per minute. And the auditor is
8 asking, on the other hand, isn't it -- how much will it cost
9 to treat the water, the flow, from all of Patriot's outfalls.

10 A. He did not ask that.

11 Q. Do you think the auditor just wants to know how much it
12 costs to treat 24 gallons per minute from each outfall?

13 A. I think he asked for my basis for using this design.

14 Q. What is the purpose of the auditor's question?

15 A. The rationale for using the six tanks in the instrument.

16 Q. Is that what it said, what's the rationale for using the
17 six tanks?

18 A. Well, the basis of professional judgment. Okay. I
19 assume that's my rationale.

20 Q. So Ernst & Young, then, didn't want to know -- wasn't
21 trying to determine what Patriot's total liability was for
22 selenium discharges; is that right?

23 A. I can't -- Ernst & Young -- I answered the question that
24 Ernst & Young had here.

25 Q. Okay. Why did -- what was your understanding at the time

McHale - Direct

1 of what Ernst & Young wanted to know?

2 A. We had supplied a spreadsheet of our -- a schedule of our
3 projected selenium treatment expenditures --

4 Q. Okay.

5 A. -- and they were reviewing it.

6 Q. The Potesta report of July 29th came six days after this
7 email, right?

8 A. Yes, it appears so.

9 Q. Okay. And that report says, at paragraph 3, in the
10 beginning, the July 29th letter, "Patriot requested that
11 Potesta prepare an estimate of the costs to remediate selenium
12 exceedances in order to meet the requirements of court orders,
13 consent decrees and Magnum's permits."

14 A. That's what it says.

15 Q. And the Potesta report then -- and the first Potesta
16 report -- strike that.

17 The draft Potesta report of January 20th, 2009 -- was the
18 January 20th, 2009 draft report a draft of the July 20th,
19 2009 report?

20 A. It appears to be two different -- it appears to be two
21 different documents.

22 Q. It is two different documents, but was one made in
23 preparation for making the other one?

24 A. It appears they were evaluating two different things.

25 Q. Why would the auditor want to know how much it costs to

McHale - Direct

1 treat 24 gallons at each outfall?

2 A. I don't believe that's what he asked me.

3 Q. It isn't?

4 A. No, he asked me why, on average, we were -- why we were
5 installing, on average, six tanks.

6 Q. So this report was not prepared -- the July 20, 2009
7 report, unlike the January 20th, 2009 draft, was not prepared
8 to tell Ernst & Young what the liabilities of Patriot for its
9 selenium liabilities were.

10 A. I was asked to prepare a schedule of our projected
11 selenium schedules. That schedule was then submitted to
12 Potesta for this report (indicating) on July 29th as a third-
13 party verification. That's all I know.

14 Q. Your schedule in the July 29th report was to treat only
15 24 gallons, then, at each Apogee outfall and at Hobet 22?

16 A. No, there were already 15 tanks installed at the
17 Apogee -- one Apogee outlet.

18 Q. And how many gallons a minute would that treat?

19 A. Five times twelve is roughly -- whatever that works out
20 to.

21 Q. Sixty?

22 A. Yeah.

23 Q. Sixty gallons per minute? And what is the average flow
24 at that outfall?

25 A. That's roughly in that -- that would be roughly close to

McHale - Direct

1 the base flow.

2 Q. Which outfall is it you're talking about now?

3 A. At Titanic. The average -- the base flow would be in the
4 40- to 50-gallon-per-minute range, and the average flow would
5 be around 100 to 105.

6 Q. What about at Outfall 2? Titanic is Outfall 3, right?

7 A. Yes.

8 Q. And what about at Outfall 2? What's the average flow
9 there?

10 A. Outfall 2, the average annual flow at Outfall 2 is around
11 400 gallons per minute.

12 Q. And what's that called?

13 A. Mud Lick.

14 Q. And what about -- is Slab Fork Number 1?

15 A. Average annual flow was calculated in the neighborhood of
16 around 1600 gallons per minute.

17 Q. Okay. And what did you -- and you estimated in this
18 July 29th -- or Potesta estimated in this July 29th report
19 that you'd be treating 24 gallons per minute at Slab Fork and
20 Mud Lick?

21 A. The systems that were, you know -- that they evaluated,
22 yeah, that looks to be like what they assumed.

23 Q. And you helped them make that assumption, didn't you?

24 A. Helped Potesta?

25 Q. Yes.

McHale - Direct

1 A. We gave them our projected expenditures and what we
2 planned to install. At that point in time we did not know how
3 much water would have to be treated.

4 Q. Now, I notice that the ABMet is not included in the
5 Potesta report but only the --

6 THE REPORTER: I'm sorry. I can't hear you.

7 BY MR. LOVETT:

8 Q. That ABMet only was included in the price estimate and
9 not ZVI; is that right?

10 A. It doesn't look like ABMet is in this July 29th report.

11 MR. LOVETT: May I approach?

12 THE COURT: You may.

13 BY MR. LOVETT:

14 Q. Plaintiff's Exhibit 21. Have you seen that before?

15 A. Yes.

16 Q. And did you write this to Blair Gardner?

17 A. Yes.

18 Q. Okay. And had -- at this time had an ABMet pilot been
19 completed?

20 A. Yes, it had.

21 Q. And that was completed by GE, right?

22 A. Yes.

23 Q. And they quote costs there I think of -- the total
24 installed cost would be 8,742,000 in the first paragraph?

25 A. Yes.

McHale - Direct

1 Q. And you say, "This is clearly not economically feasible,"
2 right?

3 A. Yes, that's what it says.

4 Q. Is that why ABMet was not considered by Potesta?

5 A. I don't believe so.

6 Q. Did you tell Potesta that ABMet was not economically
7 feasible?

8 A. No.

9 Q. And you don't know why Potesta left ABMet out of its
10 analysis of liabilities for Patriot.

11 A. I did not talk to them about any preparation of any of
12 those reports. That July 29th report, they basically state
13 that ZVI treatment system is the currently best available
14 technology. So they somehow reached that conclusion on their
15 own.

16 Q. How did they reach that conclusion on their own? Did
17 they talk to you?

18 A. It's in the report. They did not talk to me.

19 Q. Who else could they have talked to?

20 A. They did not talk -- I did not talk to them concerning
21 this.

22 Q. Why do you say it's not economically feasible?

23 A. That was -- that was my opinion at the time based on
24 where I thought the technology was going.

25 Q. Somebody give you a limit of how much you could spend to

McHale - Direct

1 comply with the Court's order?

2 A. No.

3 Q. You made the decision alone that that was too much money
4 to spend to comply with the court order; is that right?

5 A. I felt at that time that it was not economically
6 feasible. That's different than whether it's too much money
7 to comply with the court order.

8 Q. How is it different?

9 A. We had an alternative technology that I had just as much
10 confidence in that we considered less costly.

11 Q. That's not what you said. You said this isn't
12 economically feasible. You didn't say there's another
13 technology that will work.

14 A. No, I didn't, but clearly I can tell you why I made that
15 decision, and that's why. I had an alternative technology
16 that was less expensive and, in my opinion, just as feasible.

17 Q. And that would be ZVI?

18 A. Yes.

19 Q. Now, had ZVI at that time ever been installed at an
20 outfall and treated the flow from that outfall to meet water
21 quality standards all the time?

22 A. No.

23 Q. Exhibit 4. Mr. McHale, have you seen this CH2M Hill
24 report before?

25 A. Yes, I have.

McHale - Direct

1 Q. And this is the Preliminary Watershed Flow Estimation
2 with Diversion and Equalization Analysis, right?

3 A. That's correct.

4 Q. Made on January of 2009 by CH2M Hill?

5 A. Yes.

6 Q. And let's turn to page 3. There are two tables there, I
7 think, and let's look at the second of those tables, if we
8 can, the one -- Table E-4.

9 Now, this is the estimation that CH2M Hill did of the
10 flows from the Apogee site; is that right?

11 A. Yes.

12 Q. Okay. And did it have flow meters installed or did it
13 rely on the monitoring reports from Patriot?

14 A. This was based on monitoring reports, plus CH2M Hill
15 personnel had flow meters with them when they did the field
16 work.

17 Q. But they didn't have continuous flow meters out there,
18 did they?

19 A. Well, they -- I'm not sure what they installed for the
20 duration of when they were there, but there weren't permanent
21 flow meters installed.

22 Q. And as I understand it, the average flow from Outfall 1
23 is 1600 gallons per minute; Outfall 2, 400; and Outfall 1
24 (sic), 100, right?

25 A. That was the design -- that was actually a calculated

McHale - Direct

1 number for design average annual flow.

2 Q. And that's different from base flow.

3 A. Well, it's different from the average flow that they
4 observed from the DMRs and their own flow measurements.

5 Q. Okay. How so?

6 A. Well, when they did these flow measurements, it was
7 during a dry period.

8 Q. Uh-huh.

9 A. And the DMRs -- they determined that the previous year's
10 DMRs, it was a rather dry period so that the flows that were
11 measured were probably lower than the average flows. So they
12 did a calculation, a hydrological calculation and backed into
13 these numbers.

14 Q. And this is what they estimated the flow to be from those
15 outfalls based on the DMRs and their back calculation.

16 A. That's right.

17 Q. And they estimated the average flow to be 2100 gallons
18 per minute from the three outfalls, right?

19 A. Correct.

20 Q. And the average flow is different from the base flow in
21 that the average flow includes surface water as well.

22 A. It would probably include some runoff, yes.

23 Q. Some rainwater?

24 A. Yes.

25 Q. Okay. And then the design maximum flow, what is that?

McHale - Direct

1 A. That was the -- the design maximum flow was -- my
2 understanding of that, that is the flow that would result from
3 equalization structures that were constructed for, in this
4 case, the first flush from a 25-year storm event.

5 Q. Okay. And what does it mean, the first flush from a
6 25-year storm event?

7 A. The first flush as defined in the report would be the
8 first inch of rainfall from the 25-year event.

9 Q. Okay. So even that doesn't treat all the water that
10 would fall in a 25-year rain event, right?

11 A. No, it -- in this case it's very close to a 10-year
12 event.

13 Q. Okay. So the first flush of a 25-year event in this case
14 is close to treating all of a 10-year event.

15 A. Yes, it is.

16 Q. And the rest of the flow would have to be bypassed -- the
17 rest of the -- the treatment system would have to be bypassed
18 if there were a rain in excess of a 10-year rain.

19 A. Yes, the excess flow would be bypassed.

20 Q. And that flow would go into a water of the United States
21 without treatment.

22 A. Yes.

23 Q. Now, you're at the environmental -- are you in charge of
24 environmental compliance for Patriot?

25 A. Yes.

McHale - Direct

1 Q. And isn't it normally the case that you have to treat all
2 of your flow before you discharge it into a water regardless
3 of the size of the rain event?

4 A. For permits with water quality based effluent limitation,
5 we're supposed to be in compliance at all times. For
6 technology based limitations, you're allowed to bypass storm
7 events.

8 Q. Right. But these are, as you say, water quality based
9 effluent limits, right?

10 A. Yes.

11 Q. So you have to be in compliance at all times.

12 A. That's correct.

13 Q. And that would require you to treat at least the 5150
14 that is the total of 4800 and 350, right?

15 A. Depends -- like I said, that's dependent on the design
16 storm event.

17 Q. I'm talking about what the Clean Water Act requires.

18 A. Well, that would not be all the water.

19 Q. You still have to treat more water to comply with the
20 Clean Water Act than the 5150.

21 A. I can't speak to that. I know that that flow rate
22 represents the first flush, and it wouldn't treat all the
23 water that would theoretically fall.

24 Q. In fact, on the previous page, Potesta -- I mean, excuse
25 me -- CH2M Hill estimated the flows from a 25-year storm and a

McHale - Direct

1 100-year storm in addition to the first flush of a 25-year
2 storm.

3 A. Yes, they did.

4 Q. But in any event, the first flush of a 25-year storm
5 requires the treatment of 5150 gallons.

6 A. Yes, the equalized --

7 Q. Equalized treatment.

8 A. Yeah.

9 Q. Now, let's go back to these Potesta reports for a minute,
10 if we can, based on that. Now, this report, the CH2M Hill
11 report is from January of 2009, right? Do you remember the
12 exact date that you got it?

13 A. Which report? The January?

14 Q. It said January 26th.

15 A. Oh, the CH2M Hill report. I'm sorry. I misunderstood
16 you.

17 Q. So that's January 26, 2009?

18 A. Yes.

19 Q. And have you seen drafts of this, the CH2M Hill report?

20 A. I believe they did show a draft of this before they
21 finalized it.

22 Q. And you knew sometime in advance of this what they were
23 going to estimate the flows to be, right?

24 A. Yes.

25 Q. And the draft January 20th Potesta report lists the

McHale - Direct

1 total flow as 14,040 gallons per minute at all outfalls for
2 the base flow, right?

3 A. Yes.

4 Q. So the January 20, 2009 draft does not capture all of the
5 flow from all of the outfalls at Patriot; is that right?

6 A. I don't think that's necessarily right. We hadn't
7 evaluated the other outfalls other than that -- what you saw
8 right there, the review of the DMRs.

9 I'm not sure I understand your question fully.

10 Q. Well, it says -- look at this Average Flow Rate Per
11 Outlet, the same section we looked at before on page 2, where
12 it says, "With 72 outlets requiring treatment at a flow rate
13 of 195 gallons per minute, the total water flow requiring
14 treatment for Magnum operations is 14,040 gallons per minute."

15 A. That's what it says, yes.

16 Q. And at this one -- at these three outfalls in the CH2M
17 Hill report, it estimates that you have to treat 5150 gallons
18 per minute just at those outfalls, right?

19 A. Yes, that was the basis of design.

20 Q. And then when you get to the July 29th, 2009 Potesta
21 report, you are only disclosing how much it will cost to treat
22 approximately 1800 gallons per minute; is that right?

23 A. I think that's what the calculation would work out to,
24 yeah.

25 Q. You were using these Potesta documents to give Ernst &

McHale - Direct

1 Young an assessment of Patriot's total liability so that its
2 board and governing body would know what its liabilities were.

3 MR. HURNEY: Objection. He already asked, and the
4 witness said he doesn't know.

5 THE COURT: Overruled. You can answer.

6 THE WITNESS: I wasn't dealing with Ernst & Young
7 directly. I was answering some questions. I wasn't
8 representing anything to Ernst & Young.

9 BY MR. LOVETT:

10 Q. Okay. Let's turn next to the evaluation of treatment
11 alternatives from CH2M Hill, which is Exhibit -- Joint
12 Exhibit 5. Is this -- sorry. Is this also a report from
13 January 26, 2009 from CH2M Hill to Patriot?

14 A. Yes, it is.

15 Q. And you asked CH2M Hill to evaluate different treatment
16 technologies?

17 A. Yes.

18 Q. And you asked for a Class 5 cost. I'll turn your
19 attention to page 3.

20 A. We did not request any particular class of cost. That's
21 the cost that CH2M Hill is comfortable in providing.

22 Q. If you had spent more -- what is a Class 5 cost?

23 A. My understanding, that is, you know, based -- you know,
24 based on -- it's based on the amount of analysis and design
25 that has been completed for a given project.

McHale - Direct

1 Q. So a Class 5 cost in this case at Table 1, E1, is plus
2 100, minus 50; is that correct?

3 A. That's correct.

4 Q. That means it could be 100 percent more or 50 percent
5 less than the estimate.

6 A. That's what I understand.

7 Q. And the Class 5 cost is much less accurate than a Class 1
8 cost; is that right?

9 A. Yeah, that's my understanding.

10 Q. And is a Class 5 cost the least accurate cost they could
11 have estimated, or is there a Class 6?

12 A. Prior to actually starting the design, that's why it
13 was -- they explained it to me, that to get a tighter cost,
14 you would actually have to start designing the system.

15 Q. And you never asked Potesta to start designing any of
16 these systems, right?

17 A. At this point, you know, we wouldn't ask them to start
18 designing a system until we had selected a single system.

19 Q. Well, as of Friday of last week, you hadn't asked them to
20 start designing a system, had you?

21 A. As of Friday, I hadn't.

22 Q. Is that right?

23 A. Yes.

24 Q. Is that still true, or have you now asked them since
25 Friday to start designing --

McHale - Direct

1 A. They have been tasked with giving us a proposal.

2 Q. Since Friday?

3 A. Yes.

4 Q. But you could have tasked them with giving you a proposal
5 on January 26th of 2009 after they submitted this report,
6 couldn't you? You could have tasked them --

7 A. That is if we had -- were able -- had been able to select
8 the appropriate technology to go ahead with, yes.

9 Q. What technologies did -- well, let me just take you
10 through it. It will be more quick, I guess, to do it that
11 way. So basically they costed out two types of ZVI.

12 A. That's right.

13 Q. ZVI SS is -- what's that? ShipShaper?

14 A. That's correct.

15 Q. And that's the technology that we heard about July in
16 2008, the Dr. Ray Lovett technology; is that right?

17 A. Yes, it is.

18 Q. Since then another ZVI technology has emerged. That's
19 ZVI MATRIC, right?

20 A. That's right.

21 Q. And so they costed those out, and they costed out RO.
22 What does BC-BX mean after RO there? Do you know?

23 A. I don't --

24 Q. This is on Table 1, E1, Alternative 2. I just don't
25 know.

McHale - Direct

1 A. What page is that on?

2 Q. 3.

3 A. I don't know what that is.

4 Q. Okay. But it's reverse osmosis.

5 A. It's my understanding it's conventional RO.

6 Q. Okay. Not VSEP.

7 A. Right.

8 Q. Okay. And Alternative 3A is ABMet.

9 A. That's correct.

10 Q. And 3B is an FBR, a fluidized bed reactor.

11 A. That's correct.

12 Q. And 4 is Subsurface Flow Wetland.

13 A. That's right.

14 Q. I take it that you've abandoned Alternative 4 at this
15 point as a possibility.

16 A. We ruled it out at that time and based on CH2M Hill's
17 recommendation also that there wasn't sufficient acreage
18 available to do -- to perform that technology.

19 Q. Okay. And when you look at these, you have installed
20 costs and operating costs and totals for a 10-year present
21 worth cost, right?

22 A. Yes.

23 Q. And if you -- ZVI turns out -- the ShipShaper, though,
24 Lovett technology is very expensive, 56 million, right?

25 A. Yes.

McHale - Direct

1 Q. The ZVI MATRIC, the newer ZVI is 16 million. RO is
2 fifty-eight and so forth. It turns out that FBR is the least
3 expensive of the technologies, right?

4 A. Yes, in this ranking.

5 Q. And ABMet is more expensive, twice as expensive as the
6 FBR but much less expensive than RO or ZVI SS.

7 A. Yes.

8 Q. Okay. In the ballpark with MATRIC ZVI, right?

9 A. That's correct.

10 Q. Okay. Now, at this time had the pilot from ABMet been
11 completed?

12 A. No. It was just about to get started.

13 Q. Okay. Now, at this time you still hadn't told CH2M Hill
14 that you had a compliance deadline, had you?

15 A. Oh, yes, we had.

16 Q. You had? Had you told Tom Sandy that?

17 A. I told Tim Harrison I know for sure. In fact, it was in
18 the Power Point presentation on our kickoff meeting
19 October 1st.

20 Q. The date?

21 A. Huh?

22 Q. The date?

23 A. The fact that we had a consent order obligation, yes.

24 Q. Was the date of the order on that Power Point?

25 A. I don't recall what the date was, but I had -- I kept

McHale - Direct

1 each of our vendors informed of our compliance dates.

2 Q. You did?

3 A. Yes.

4 Q. Okay.

5 A. And one thing I'd like to point out in this one report
6 from August, the first CH2M Hill report on the preliminary
7 screening, said revision one, the prior -- the prior report
8 actually referenced the consent decree in that document.

9 Q. But it didn't reference a date, did it?

10 A. It referenced the consent decree.

11 Q. Okay. After this report came out and the flow report
12 came out -- they came out on the same day, right? Did you do
13 anything -- did Patriot do anything to explore how to equalize
14 5150 gallons per minute or more at the Apogee site?

15 A. As far as --

16 Q. Constructing a basin or a dam of some sort to do that.

17 A. Well, you can't go ahead with that type of work until you
18 have your detail design work done.

19 Q. Did you do your detail design work?

20 A. We hadn't selected a technology yet.

21 Q. You knew you had to equalize the flow, didn't you?

22 A. Yes.

23 Q. Okay. So does it matter whether you use ABMet or reverse
24 osmosis or FBR how you equalize the flow?

25 A. It matters what flow rates you treat.

McHale - Direct

1 Q. Well, you know you've got to treat at least 5150, don't
2 you?

3 A. That was the design basis for the CH2M Hill report. We
4 were still trying to evaluate what was the appropriate flow
5 levels.

6 Q. Because you thought you might have to treat more than
7 that?

8 A. Well, we did not know how much would have to be
9 treated to maintain compliance. The standard assumption with
10 storm water is that during storm water events, you get
11 dilution. So, you know, in theory you don't have to treat
12 storm water --

13 Q. I thought you just told me that DEP required the
14 treatment of all water when there was a water quality based
15 effluent like there is at Apogee.

16 A. No, your effluent just needs to be in compliance at all
17 times. It doesn't require the treatment of all water.

18 Q. Do you have any data to support the contention that when
19 flow is high, that the water that would be bypassed would be
20 meeting the water quality standard?

21 A. No, and that's what we -- we have a -- in fact, we have a
22 year-long study going on right now to try to quantify that,
23 but that has been the conventional wisdom on this treatment
24 for years.

25 Q. This hearing we had in July of 2008, wasn't equalization

McHale - Direct

1 a significant part of the testimony at the hearing?

2 A. In July 2008?

3 Q. Yes, before this Court.

4 A. I know it was -- I know it was -- it was discussed. I
5 don't know how significant it was.

6 Q. And the CH2M Hill report of January of 2009 tells you,
7 doesn't it, that you're going to have to construct a 60-foot
8 impoundment to equalize the flow at Outfall 1?

9 A. At that basis of design, yes.

10 Q. And to this day have you undertaken any design of an
11 equalization structure at Apogee?

12 A. No. Like I said, until you decide on the flow rate, you
13 can't go to the regulatory agency and say, "I have a range of
14 pond designs I need to get approved."

15 Q. How did you expect to comply with the court order, with
16 the consent decree here by April if you never even made --
17 took the first step to decide how to equalize the flow?

18 A. We had hired MATRIC to design base systems to be
19 installed in compliance with the consent order deadlines based
20 on the average flows in the CH2M Hill report.

21 Q. You hired MATRIC to put in ZVI?

22 A. Yes, we did.

23 Q. To treat 1600 gallons per minute at Outfall 1?

24 A. And 400 at Mud Lick.

25 Q. Of course, that's not what the Clean Water Act requires,

McHale - Direct

1 right?

2 A. No, but that's -- that's what we -- we had an order to
3 install treatment; and when you design for average flows,
4 you're going to be treating 90, 95 percent of the water
5 anyway. That's as close as we could get based on what we
6 knew.

7 Q. So you entered into a contract with MATRIC to do this?

8 A. No, we didn't have a formal contract, but we had -- we
9 had -- in July of 2009, we had entered -- we had tasked MATRIC
10 to review selenium technologies. They quickly came up within,
11 you know, a month or so, with this ZVI foam and proposed it as
12 the -- as a solution that would work. And so in November we
13 basically -- we tasked them to design and to construct by
14 June 30th a system.

15 Q. I don't know how we got off onto ZVI. I was asking you
16 about equalization.

17 A. No, you asked me how I was going to comply with the
18 June 30th deadline. That's how I was going to comply.

19 Q. What I meant was, if you hadn't equalized the flows
20 yet --

21 A. If you're designing for 1600 and 400 and 100, you don't
22 need to equalize.

23 Q. Is it your testimony that to treat 1600 gallons per
24 minute at Outfall 1, no equalization is required?

25 A. Not the equalization that's here. I don't know. The

McHale - Direct

1 analysis is being performed right now.

2 Q. Who's performing it?

3 A. CH2M Hill.

4 Q. When were they hired to perform that?

5 A. Well, we did preliminary work last week, and I formally
6 tasked them to do it today.

7 Q. Today?

8 A. To clean up what they came up with last week. It was
9 done on a very preliminary basis, and we want to finalize it.

10 Q. Okay. Nevertheless, CH2M Hill back in January
11 recommended a 40-foot impoundment, right?

12 A. I believe it was a 60-foot --

13 Q. Sixty-foot impoundment. You're right. What did you do
14 to accomplish that?

15 A. As I said, we weren't in a position or at a stage to
16 start designing equalization structures.

17 Q. Did you even do a geotechnical analysis necessary to
18 determine whether or not it could be built in that location?

19 A. No. That wasn't appropriate to do so at the time.

20 Q. Because you hadn't decided how much water you were going
21 to treat.

22 A. That's correct.

23 Q. There's no question but that you have to treat at least
24 the average flow, is there, 1600 gallons per minute at
25 Outfall 1?

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1 A. As I said, yes, there's still significant questions as to
2 what the appropriate flow is.

3 Q. Well, it couldn't be less than that, could it?

4 A. Sure.

5 Q. Really?

6 A. Yes.

7 Q. How? How could it be that you would have to treat less
8 than the average flow?

9 A. As I explained, any runoff due to rainfall could
10 potentially be bypassed. We're evaluating that now.

11 Also, there are -- you know, there is the possibility, as
12 you just heard from the previous witness, of splitting a
13 stream, the inflow stream, you know, in certain circumstances
14 where you bypass some that doesn't have to be treated but
15 could be blended in later. And we're evaluating all those
16 options.

17 Q. Who's evaluating them? Have you hired CH2M Hill to do
18 that?

19 A. We've hired CH2M Hill to do the storm water evaluation,
20 yes.

21 Q. But that's only to determine whether there is going to be
22 selenium in storm water events, right?

23 A. That's the primary purpose.

24 Q. Not to -- you just testified about splitting the flows.
25 You haven't even tasked anyone with that, right?

McHale - Direct

1 A. That would be part of the detail design, yes, once we
2 selected a technology. That would be one of the tasks.

3 Q. It hasn't been started yet, though, has it?

4 A. We've requested -- based on the FBR report, which we just
5 got July 22nd, we have authorized CH2M Hill to give us a
6 proposal for constructing a fluidized bed reactor at Apogee to
7 treat three sites.

8 Q. Okay. In Joint Exhibit 5, the alternatives evaluation,
9 let's go to page 36 at the recommendations. So these are
10 recommendations that CH2M Hill made to Patriot on January 26th
11 of 2009, right?

12 A. Yes.

13 Q. The second bullet point says, "Initiate discussions with
14 the WVDEP to negotiate the quantity of water that will need to
15 be captured and treated," right?

16 A. Yes.

17 Q. Have you actually had any negotiations with DEP about
18 that?

19 A. I've had informal discussions with them.

20 Q. And when was that?

21 A. Over a period of time.

22 Q. I think that you testified -- well, did you have two or
23 three discussions informally with Tom Clark?

24 A. I had two or -- I had several discussions informally with
25 Tom Clark and others at DEP.

McHale - Direct

1 Q. Others? Who else?

2 A. It would've been Ken Politan and people like Lewis
3 Halstead.

4 Q. Did you talk to Lewis Halstead about this?

5 A. In the setting, you know, yes, in a general setting.

6 Q. What do you mean, in a general setting?

7 A. When we -- we would meet with DEP from time to time, and
8 that was always a topic that would come up.

9 Q. Lewis Halstead. Anybody else? Tom Clark?

10 A. I don't know, you know. I can't say specifically. I
11 think Jeff Parsons was probably involved.

12 Q. Did you ever make a formal request for them to tell you
13 how much water you're going to have to treat?

14 A. Request in writing?

15 Q. Yeah.

16 A. No.

17 Q. Did you ever get a response from them?

18 A. No, we never did get any feedback.

19 Q. Did you ever make a formal response orally -- I mean,
20 excuse me -- a formal request orally for them to do it, not
21 just a chitchat thing, but a formal request? "I want you to
22 tell us how much water we have to treat so that we can start
23 building an equalization system."

24 A. I think I just testified that I asked them in the context
25 of several of our meetings what is the quantity of water we

McHale - Direct

1 have to treat.

2 Q. I think you testified it was in a general conversation,
3 though.

4 A. Yes.

5 Q. You never -- okay. And that's all you've done?

6 A. Yes.

7 Q. Okay. The other one says, "Install appropriate flow
8 monitoring and sampling equipment near-term to better define
9 the basis of design for the outfalls of concern."

10 A. Yes.

11 Q. You didn't do that, did you?

12 A. No, we've not installed those at Apogee. We have
13 installed them at several outlets at Hobet in conjunction with
14 our storm water flow that we're doing at this point.

15 Q. Only for that test you're doing to see if --

16 A. Excuse me?

17 Q. Only for the test to determine the concentrations of
18 selenium in rainwater --

19 A. Right, yeah, and to better determine the flows to be
20 treated as part of the --

21 Q. And then the next one is, "Based on the drivers of
22 effectiveness, cost, footprint, and availability, CH2M Hill
23 would recommend that Patriot pursue a pilot test of
24 Alternative 3B to treat selenium in mine water."

25 You did that, right?

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1 A. Yes, that's just been completed.

2 Q. Okay. When did you start that pilot test, the FBR pilot
3 test?

4 A. We started the project up in about February time frame
5 this year.

6 Q. February 2010?

7 A. Yes.

8 Q. And this recommendation was made to you in January of
9 2009?

10 A. That's correct.

11 Q. Why did it take you over a year to do it?

12 A. Well, we were -- at that point in time, we were -- had
13 just completed the RO pilot. We were embarking on the ABMet
14 pilot, and then that went right into a pilot of the VSEP
15 operations, of the VSEP technology. So, you know, we pursued
16 those first since they were already --

17 Q. The truth is, even at this time CH2M Hill thought that
18 FBR was going to be the best technology, didn't it, in January
19 of 2009?

20 A. That's not what this says.

21 Q. But it is a fact, though, isn't it?

22 A. That's not what this says.

23 Q. I know, but I'm asking you, do you know that to be a fact
24 otherwise?

25 A. I can't speak for what CH2M Hill believed other than what

McHale - Direct

1 they've put in this report.

2 Q. Did they have meetings with you?

3 A. Yes.

4 Q. And did you not come away from some of those meetings
5 with the impression that CH2M Hill would recommend an FBR?

6 A. They recommended further evaluation.

7 Q. Did you not have the impression that that was a favorite
8 technology at the time?

9 A. No, because they also said to keep evaluating ZVI.

10 MR. LOVETT: Approach, Your Honor?

11 THE COURT: You may.

12 BY MR. LOVETT:

13 Q. Exhibit 21. Joint Exhibit 21. Have you seen that
14 before?

15 A. Yes.

16 Q. And this is from September of 2009, right?

17 A. Yes, it is.

18 Q. And what is it?

19 A. It is a cost estimate for ABMet.

20 Q. Okay. And was there an ABMet pilot before this?

21 A. Yes, there was.

22 Q. And did that pilot successfully treat water to below
23 5 parts per billion for selenium?

24 A. Yes, it did.

25 Q. And that's a GE technology?

McHale - Direct

1 A. Yes.

2 Q. And that's the technology that you said was -- I can't
3 remember -- cost prohibitive in the earlier email?

4 A. Yes.

5 Q. Okay. Let's turn to the cost on the very back page of
6 the exhibit, in the appendix, the second to the last page,
7 which says page 13 or 14 on the top. Do you see that?

8 A. 13 or 14? Yes.

9 Q. Okay. So it estimates the cost of a 175-gallon-per-
10 minute system at -- the estimated cost is \$2,350,000 for the
11 technology?

12 A. Yeah, the total equipment costs. Yes.

13 Q. Well, the total cost is 9,195,000, right?

14 A. That's correct.

15 Q. What does the 2,350,000 represent?

16 A. That's simply the ABMet equipment.

17 Q. So the whole thing for the ABMet process for 175 gallons
18 is \$9,195,000 --

19 A. That's right.

20 Q. -- for 250 gallons per minute. And then on the next page
21 you have an estimate for 500 gallons per minute, right?

22 A. That's correct.

23 Q. And it estimates that cost at \$18,213,000.

24 A. That's right.

25 Q. For only 500 gallons per minute.

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1 A. Correct.

2 Q. So if you had to treat 5000 gallons per minute, would it
3 be fair to guess that the cost would be, you know, 10 times
4 the 18 million, or do you think you would have economy to
5 scale that would reduce that?

6 MR. HURNEY: Objection, Your Honor.

7 THE COURT: Overruled.

8 THE WITNESS: I don't know. I don't think it's a
9 linear relationship.

10 BY MR. LOVETT:

11 Q. Did you ever ask anybody? Did you ever ask GE?

12 A. Ask them --

13 Q. GE.

14 A. For what?

15 Q. For a cost of treating more than 500 gallons per minute.

16 A. No, we didn't.

17 Q. Why not?

18 A. Because at that point in time we were considering this
19 for the Outlet 2 at Hobet, and that was the design flows we
20 were looking at.

21 Q. Why weren't you considering it for everywhere?

22 A. We were considering ABMet for everywhere, but this was
23 specific to an outlet that we were considering putting ABMet
24 in.

25 Q. Well, that's just for the pilot that was performed,

McHale - Direct

1 right?

2 A. Excuse me?

3 Q. That outlet is just where the pilot was being performed
4 at Hobet.

5 A. GE quoted us equipment for Outlet 2 at Hobet.

6 Q. Okay. Did you ever ask it how much it would cost to
7 treat more than 500 gallons per minute with ABMet?

8 A. No, I didn't task them with that, but CH2M Hill did do
9 the analysis at 800 gallons per minute.

10 Q. Right. We'll get to that, I think. Is that in the FBR
11 study?

12 A. Excuse me?

13 Q. Or is that somewhere else? In the FBR pilot study?

14 A. That was done in the January 26th report.

15 Q. Okay. Well, it couldn't have done it -- I mean that
16 would have been done before the pilot.

17 A. Yes. They did it based on information -- they contacted
18 GE and got some information from them in preparation for this.

19 Q. Right. But this study is after the pilot, the -- strike
20 that. The cost estimates for two full-scale ABMet systems
21 provided by CH2M Hill, that was done after the pilot, right?

22 A. Yes, this was.

23 Q. So CH2M Hill were serious about evaluating this
24 technology. They're giving you a cost after the pilot in
25 addition to the cost they gave you before the pilot, right?

McHale - Direct

1 A. I asked for those specific -- I asked CH2M Hill -- GE and
2 CH2M Hill both to give me quotes for those particular flow
3 rates.

4 Q. Right. And you never asked for a quote for a flow rate
5 above 500 gallons.

6 A. No, I didn't.

7 Q. Was your contact at GE Mr. Rooney?

8 A. Yes. Initially it was a gentleman by the name of Fred
9 Liberatore and then later Phil Rooney.

10 Q. Phil Rooney? And did Phil Rooney follow up with you on
11 the ABMet pilot? Did he call you and ask you what you were
12 doing?

13 A. I believe he did contact me.

14 Q. And did you get back to him?

15 A. Well, actually I got back to him to ask him for a quote,
16 yes.

17 Q. Did he give you a quote?

18 A. Yes.

19 Q. And what was the quote?

20 A. I don't recall off the top of my head. I think, you
21 know, they were basically -- the equipment costs were quoted
22 in the CH2M Hill report.

23 Q. Was that before or after the pilot?

24 A. That was after the pilot.

25 THE COURT: We need to take a break soon.

McHale - Direct

1 MR. LOVETT: This is --

2 THE COURT: All right. We're going to take a
3 five-minute recess.

4 (Recess from 3:56 p.m. to 4:10 p.m.)

5 THE COURT: All right.

6 MR. LOVETT: Exhibit 5. Sorry about that.

7 MR. MCLUSKY: Your Honor, before we go, might I
8 inquire scheduling-wise? We have a deposition that has been
9 designated to be shown. We got the plaintiff's designation of
10 their part apparently emailed to us today. I'm trying to
11 figure out whether to stay for the rest of this or go back and
12 work on my designation of that so that --

13 THE COURT: Well, how much longer is your direct
14 going to be?

15 MR. LOVETT: Half hour, 20 minutes. Half hour.

16 THE COURT: Are you going to do the cross?

17 MR. MCLUSKY: No, Mr. Hurney is.

18 THE COURT: I think we're going to be tied up with
19 this for the rest of this day.

20 MR. MCLUSKY: All right. Thank you.

21 MR. HURNEY: Your Honor, if it's quarter of five or
22 something, do you want to -- I think I'm going to be an hour
23 or so if you want to -- I would propose I can clean up my
24 notes --

25 THE COURT: Well, let's see what time we get there.

McHale - Direct

1 That's fine.

2 MR. LOVETT: May I approach, Your Honor?

3 THE COURT: Yes, you may.

4 BY MR. LOVETT:

5 Q. I'm going to show you two -- I'll just bring two at once
6 to expedite things. First is Exhibit --

7 MR. TEANEY: Whatever it says. Joint.

8 MR. LOVETT: Joint Exhibit 18. Here's Joint
9 Exhibit 56. That way I won't have to go back up here. I
10 apologize. Plaintiff's 46.

11 THE COURT: Joint Exhibit 18 and then --

12 MR. LOVETT: Joint Exhibit 18 is a Power Point
13 presentation from Patriot Coal, and the other one is the FBR,
14 fluidized bed reactor, pilot study.

15 THE COURT: And what was the other number?

16 MR. TEANEY: Plaintiff's 46.

17 MR. LOVETT: 46.

18 THE COURT: Plaintiff's?

19 MR. LOVETT: Plaintiff's 46 and Joint 18.

20 BY MR. LOVETT:

21 Q. Joint 18 will just be brief. Is this the Power Point
22 presentation that you referenced earlier in terms of
23 explaining to CH2M Hill and others that there was a consent
24 decree deadline?

25 A. This was the -- yes, this is what I referenced earlier.

McHale - Direct

1 Q. Can you find it here where it says the deadline?

2 A. If you go to the sixth page in, it says Potential Key
3 Objective Areas.

4 Q. One, two. Okay.

5 A. Environmental. It said Compliance with Consent Order.

6 Q. Right. No date, though. No date.

7 A. I mean, you know, they were aware of a compliance
8 obligation with a consent order. It's not reflected in here.

9 Q. What date is this Power Point given?

10 A. October 1st.

11 Q. Of what year?

12 A. Of 2008.

13 Q. Does that refer to the DEP consent order?

14 A. Excuse me?

15 Q. Does that refer to the DEP consent order in the Boone
16 County case?

17 A. No. This is related to Apogee. This is Ruffner Mine
18 selenium.

19 Q. But the Apogee consent decree hadn't been entered by that
20 time, had it?

21 A. The March 19th order of 2009 are you referring to?

22 Q. Yes.

23 A. No, it hadn't been.

24 Q. So it couldn't be referring to that, could it?

25 A. It couldn't have been referring to that order. It was

McHale - Direct

1 referring to our compliance obligation at Ruffner because we
2 had -- I mean this was not above Hobet.

3 Q. That doesn't show in any way that you told CH2M Hill that
4 you had to comply with the consent decree before this Court
5 that required compliance by April of 2010, right?

6 A. It shows that they were aware of a court deadline, of a
7 court compliance obligation, yes.

8 Q. Okay.

9 A. Otherwise, why would it be in there?

10 Q. The FBR pilot study, July 2010 report, it's Plaintiff's
11 46.

12 A. Yes.

13 Q. Is a fairly recent report from CH2M Hill?

14 A. Yes, it is.

15 Q. Estimating costs for the FBR?

16 A. That's correct.

17 Q. And those costs are summarized, I guess, on a table on
18 the second page, and they only went to a flow of 800 gallons
19 per minute there, right?

20 A. Yes.

21 Q. Why didn't you ask them to do a higher flow?

22 A. For purposes of this report, we wanted to conform with
23 the earlier report.

24 Q. But you know you have to treat 5100 -- at least
25 5150 gallons at Apogee, don't you?

McHale - Direct

1 A. As I said earlier, I do not know ultimately what we will
2 have to treat.

3 Q. You know you -- you believe you're going to have to treat
4 more than 800 gallons per minute?

5 A. I don't know.

6 Q. And then it compares the costs of technologies on
7 page iii, and an FBR turns out to be significantly cheaper
8 than ABMet, ZVI, or RO; is that right?

9 A. Yes, it is the cheapest alternative in this table.

10 Q. Now, if FBR were put in, would CH2M Hill be the
11 engineering and contracting firm to do that?

12 A. I would anticipate that they would.

13 Q. So would CH2M Hill make a larger profit if it put in an
14 FBR as opposed to ABMet do you think?

15 A. I have absolutely no idea.

16 Q. They do a lot more work for Patriot, right?

17 A. They do not -- they do not market the FBR technology,
18 so --

19 Q. The FBR technology is not proprietary, right?

20 A. There's a third party, EnviroGen, who markets it just
21 like GE markets ABMet.

22 Q. I think they're just marketing equipment for it, right?
23 They're not marketing the process, are they?

24 A. They do the same thing for FBR that GE does for ABMet.
25 It's identical. They'll supply the equipment.

McHale - Direct

1 Q. But GE also has a proprietary interest in the process of
2 ABMet that nobody has in FBR, right?

3 A. I don't know what EnviroGen's proprietary interest is. I
4 assume no one else could manufacture that technology.

5 Q. Okay. Just turn your attention to the page at the end,
6 the recommendations, 6-3, which is about halfway through this
7 stack of documents, page 6-3. Do you see that?

8 A. Yes.

9 Q. It says, "Based on the results of the FBR pilot study, an
10 appropriate design of full-scale FBR system with associated
11 effluent suspended solids removal system would be able to
12 consistently achieve a dissolved selenium reduction to less
13 than the required WVDEP limit of 4.7 micrograms per liter."

14 A. Yes.

15 Q. So they say it works, right?

16 A. They think they could design a system that would meet
17 that limit, yes.

18 Q. So we know now after all --

19 A. Subject to the qualifications on the following page.

20 Q. Those don't qualify whether it would work or not, do
21 they? They just qualify different ways of setting it up.

22 A. They identified items that need to be answered prior to
23 that.

24 Q. Right, but they don't think that that will stop the
25 system from working to treat the 5 parts per billion.

McHale - Direct

1 A. I don't know what -- I can't tell you what they think,
2 but if any of these additional evaluations were to come up
3 negative, yes, it would affect the decision.

4 Q. Tom Sandy is going to testify about this tomorrow or the
5 next day.

6 A. That's fine. I just -- these bullet points do concern
7 me. There's certain things that need to be addressed.

8 Q. There are always things that could be addressed, right?
9 I mean it never ends.

10 A. These are items that have been flagged by the consult --
11 by CH2M Hill as affecting the feasibility of the design.

12 Q. Do you think that CH2M Hill believes that there are any
13 problems that would stop the FBR process from treating your
14 effluent to 5 parts per billion selenium?

15 A. They've indicated to me exactly what's in the
16 recommendations here, that they think we can get there.
17 There's still some obstacles to be overcome.

18 Q. And do you think that -- so now we have a situation where
19 reverse osmosis will treat to 5 parts per billion or less,
20 although expensively; is that right?

21 A. The pilots we did failed.

22 Q. You don't think that reverse osmosis will treat your
23 effluent to 5 parts per billion or less?

24 A. Not on our -- not on our conditions, no.

25 Q. Do you think it will?

McHale - Direct

1 A. Do I think it will?

2 Q. Uh-huh.

3 A. I don't think it will.

4 Q. Okay. Do you think ABMet would work to treat selenium to
5 5 parts per billion or less at your outfalls?

6 A. All I know is that ABMet has been installed in many
7 places and it is not treating to that limit anywhere that I'm
8 aware of at a surface mine or --

9 Q. Do you think it will work at your outfalls?

10 A. Do I think ABMet will work to achieve compliance?

11 Q. Yes.

12 A. At this point I have no reason to believe it will work
13 any better than other technologies we're employing.

14 Q. I'm not asking you that. I'm asking if you believe that
15 it will work.

16 A. Ultimately I don't know until, you know -- I have no
17 basis for determining if it will work in our conditions.

18 Q. Okay. Do you think the FBR will work in your conditions?

19 A. I think, you know, based on CH2M Hill's recommendations,
20 I think it has potential to work, yes.

21 Q. Do you think it will work?

22 A. I don't know if it will work until we build one.

23 Q. Do you think that FBR has an advantage over ABMet --

24 A. Yes, I do.

25 Q. -- in its ability to work?

McHale - Direct

1 A. Yes, I do.

2 Q. Why do you think that?

3 A. First of all, it requires ultimately a smaller footprint,
4 which is very attractive in our conditions because we're very
5 constrained by space; and secondly, it -- you know, obviously
6 the cost factors in. It is a less expensive system than
7 ABMet.

8 Q. Let me take cost out of the equation. If cost were not
9 an issue, do you think that one technology would be superior
10 to the other for the sole purpose of treating your effluent to
11 5 parts per billion?

12 A. I believe the FBR technology has some inherent
13 advantages, but -- the way it's been explained to me.

14 Q. Any except for the footprint?

15 A. Well, it's more -- it's a more -- my understanding, the
16 way it's been explained to me, because the system itself
17 increases the amount of surface area of the bacteria that are
18 available for selenium reduction, it's a more efficient
19 system. So the more efficient system gets the nod in that
20 case.

21 Q. Okay. Now, since this FBR report has come out, it sounds
22 like you've had some discussions with CH2M Hill about the cost
23 of the FBR; is that right?

24 A. Yes, we've discussed it quite a bit last week.

25 Q. Okay. And with the timing of installation as well?

McHale - Direct

1 A. Yes, we did.

2 Q. And also with the equalization?

3 A. We talked about equalization also.

4 Q. What about flows?

5 A. We talked about flows.

6 Q. Timing, flows, equalization, cost. Anything else?

7 A. Putting a centralized system in rather than three
8 independent units.

9 Q. Okay. Let's talk about what's happened in these
10 conversations. Timing. How long does CH2M Hill think it
11 would take it to install a treatment system, whether
12 centralized or individualized?

13 A. The minimum they think they could do it in, the most
14 compressed time frame, would be two years and six months.

15 Q. Two years, six months?

16 A. Yes.

17 Q. Is that for a centralized system or for individual
18 systems at each outfall?

19 A. We were talking more or less about the centralized
20 system. I've asked them to go ahead and cost it out both
21 ways.

22 Q. And which came out to be more expensive?

23 A. It came out to be more expensive. They're also working
24 the schedule.

25 Q. The individualized system --

McHale - Direct

1 A. Yes.

2 Q. -- came out to be more expensive?

3 A. Yeah, the three separate outlets rather than one central
4 system.

5 Q. And what is the cost of the individualized system?

6 A. In total?

7 Q. Yes.

8 A. Roughly 40 million by their estimate.

9 Q. Forty million for the individual systems?

10 A. For the centralized system.

11 Q. Oh, okay, for the centralized. Forty million for
12 centralized system. And how many -- and what flow would that
13 treat?

14 A. That would treat a 2100-gallon-per-minute flow.

15 Q. 2100-gallon-per-minute flow. And that's the average
16 flow.

17 A. Yes.

18 Q. Well less than the 5150 first flush 25-year flow, right?

19 A. Yes.

20 Q. Did you ask them for a cost for the 5150?

21 A. Yes. That is the 40 million.

22 Q. No, I thought you said that was the cost for 2100 gallons
23 per minute.

24 A. Oh, I'm sorry. I misspoke.

25 Q. That's okay.

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1 A. No, I have not asked them for a cost for 5150.

2 Q. You still have not asked for that cost?

3 A. Not yet.

4 Q. Okay. Do you plan to do that?

5 A. I don't currently plan to do it. I want to see what they
6 come up with here first.

7 Q. Okay. And what was the cost for the individualized
8 systems?

9 A. Roughly 46 million, round numbers.

10 Q. And that is for 2100 gallons per minute as well?

11 A. That's correct.

12 Q. Okay. Now, is this the total installed costs, or is
13 there something that's left out of it?

14 A. It was meant to be total installed cost, and it's a very
15 rough estimate. It doesn't qualify as a Class 5 estimate at
16 this point. That's why I've asked them to formalize that.

17 Q. You mean it's less accurate or -- than a Class 5?

18 A. Yes. It was done in the course of a couple of days of
19 discussions there, and they used a lot of assumptions.

20 Q. Well, I'm confused, because I thought the FBR study was a
21 Class 5, the pilot was a Class 5.

22 A. It is, but for the differing flow -- for the different
23 flow rates and for centralized --

24 Q. I see.

25 A. -- versus independent, that requires quite a bit of

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1 additional work.

2 Q. I see. So you're saying this is a Class 5 for
3 800 gallons per minute.

4 A. Yes, it is.

5 Q. But it's not a Class 5 for 2100 gallons per minute.

6 A. 2100. And also it doesn't -- you know, like I said, the
7 centralized system includes a lot of things that are not
8 included in the independent, in the individual scenario.

9 Q. Now, for equalization, that's not in these total
10 installed costs? That's left out of it?

11 A. It is.

12 Q. It is left out?

13 A. It is left out.

14 Q. Is that the only item, significant item that's left out
15 of the total installed costs?

16 A. I believe so.

17 Q. Okay. And what have you decided to do for equalization?

18 A. I've tasked them with giving me the equalization volumes
19 that would be necessary for each scenario.

20 Q. What do you mean, for each scenario?

21 A. With the centralized scenario and the independent
22 scenario.

23 Q. Is it only for 2100 gallons per minute?

24 A. Yes.

25 Q. You have not tasked them with giving you an equalization

McHale - Direct

1 proposal for anything higher than that.

2 A. Not at this time.

3 Q. When do you expect to get their response?

4 A. I've asked them to let me know how soon they can provide
5 that to me. I don't -- I've not gotten that back yet.

6 Q. Do you think you'll have it by the end of the week?

7 A. I think that would be the earliest. I would expect that
8 the cost would be next week sometime.

9 Q. You still haven't tasked CH2M Hill with actually
10 designing and installing a project, have you?

11 A. I've asked them to give me a proposal.

12 Q. You've asked for a proposal?

13 A. Oh, yeah. Yeah.

14 Q. And when did you do that?

15 A. I did that this morning.

16 Q. And by when did they have to give you the proposal?

17 A. Once again, I asked them to let me know how long it would
18 take to provide that to me and any additional information I
19 needed to provide to them for preparation.

20 Q. And what did they tell you?

21 A. They'll let me know something hopefully later this week.

22 Q. Do you mean they're going to give you a proposal or
23 they're going to tell you when they're going to give --

24 A. When they can give me the proposal. There's quite a bit
25 of work that will go into that.

McHale - Direct

1 Q. That will take a few weeks for CH2M Hill?

2 A. I imagine it could.

3 Q. So the \$40 million does not include equalization, it is
4 for 2100 gallons per minute, and it's not even accurate to a
5 Class 5 level. Is that a fair summary of your testimony?

6 A. That's essentially true, yes.

7 Q. Do you intend to install an FBR at the Apogee and Hobet
8 sites?

9 A. Yes, we do.

10 Q. You do? Did you ask for a proposal for the Hobet 22 site
11 as well?

12 A. Oh, I'm sorry. Did you include the -- at this point
13 we're still evaluating 22.

14 Q. So you've not yet asked for a proposal there from CH2M
15 Hill.

16 A. No, we haven't.

17 Q. Does that mean that you no longer intend to use ZVI at
18 Apogee?

19 A. That's probably true. It depends on -- you know, we
20 haven't made a final decision, but at this point it looks like
21 we'll go ahead with FBR at all three sites.

22 Q. Why does CH2M Hill recommend an FBR over a ZVI? Does it
23 believe it's a more mature technology?

24 A. It's been used in other applications. It's not mature
25 from the standpoint of selenium treatment.

McHale - Direct

1 Q. Okay. Have you actually applied for any permits to
2 construct equalization to put in an FBR or any other
3 technology with either the DEP, the Army Corps, or MSHA?

4 A. We've discussed permitting for an FBR facility with DEP
5 as to what permitting requirements would be necessary for
6 Article III NPDES.

7 Q. And when did you do that?

8 A. Last week.

9 Q. Last week?

10 A. I think around Thursday.

11 Q. But you haven't submitted an application.

12 A. No, there's -- you can't submit an application until you
13 at least have some design done.

14 Q. Sure. But that was the first discussion you've had with
15 DEP about --

16 A. About FBR.

17 Q. Or about changing your NPDES permit for these sites.

18 A. For the Apogee permit?

19 Q. Yes.

20 A. Yes.

21 Q. And for the Hobet 22 permit.

22 A. We did not discuss Hobet 22 in that meeting.

23 Q. Have you tasked anyone yet with -- I think you answered
24 this already. Let me ask you again. Did you task anyone yet
25 with a geotechnical study of the site for water retention?

McHale - Direct

1 A. No. A site has not been selected yet, or the sites.

2 Q. Are you confident that you have sufficient room on-site
3 without building any new impoundment to treat 2100 gallons per
4 minute?

5 A. There may be some new capacity would have to be
6 constructed.

7 Q. But that would be a small --

8 THE REPORTER: I'm sorry. "There may be some" --

9 THE WITNESS: New capacity that would have to be
10 constructed.

11 BY MR. LOVETT:

12 Q. But that would be a small pond and not a large
13 impoundment like the 60-foot dam that CH2M recommends.

14 A. I don't -- no, it would certainly not be a 60-foot dam.

15 Q. After Mr. Schroeder's deposition in this case, did he
16 call you?

17 A. No.

18 Q. Did anyone from the financial side of the company call
19 you?

20 A. Mr. Schroeder and I spoke in person.

21 Q. You spoke -- Mr. Schroeder is the CFO of Patriot?

22 A. Yes.

23 Q. And after his deposition, he came to see you?

24 A. I spoke with him. He didn't come to see me. I spoke
25 with him when he was in Charleston.

McHale - Direct

1 Q. Okay. Is that the only time you've spoken since the
2 deposition about the contents of his deposition?

3 A. No, we also had some -- well, yes, that was the only time
4 we spoke about that, yes.

5 Q. Did he ask you about the cost of compliance with these
6 permits?

7 A. Yes, we discussed generally selenium compliance and the
8 FBR technology in particular.

9 Q. Did you explain to him that it's going to cost several
10 tens of millions of dollars to treat the selenium at the
11 Apogee site?

12 A. Yes, we had that discussion.

13 Q. He understood after that discussion that it was going to
14 cost several tens of millions of dollars to treat the selenium
15 at the Apogee site?

16 A. Yes, he understood that it could cost up to those numbers
17 we discussed here.

18 Q. Up to \$40 million --

19 A. Yes.

20 Q. -- to treat the average flow.

21 A. Yes, to treat those flows.

22 Q. Did you explain to him that if you had to treat more than
23 the average flow, that those numbers could go up?

24 A. We didn't -- we didn't go there in the discussion, no.

25 Q. When was that discussion? What was the day?

McHale - Direct

1 A. We spoke this morning.

2 Q. You've spoken to him since your deposition but before
3 this morning?

4 A. We spoke last week. Well, there was a conference call
5 last week that both he and I were involved in about these
6 costs.

7 Q. And did he understand then that the costs could be
8 several tens of millions of dollars at Apogee?

9 A. Yes.

10 Q. And what day was that conference call?

11 A. We had two calls I believe on Tuesday afternoon and
12 Wednesday morning.

13 Q. Okay. Was there any other time between the time of his
14 deposition and today that you spoke to him about the costs of
15 treating selenium?

16 A. Not that I recall.

17 Q. He didn't contact you after his deposition to talk to you
18 about these things?

19 A. No, he didn't call me.

20 Q. Is Mr. Schroeder concerned about the economic feasibility
21 of accomplishing this treatment?

22 A. He didn't express that concern to me.

23 Q. Has he ever? Has he ever expressed that concern to you?

24 A. No, not to my knowledge. I can't recall that if he has.

25 MR. LOVETT: May I approach?

McHale - Direct

1 THE COURT: You may.

2 MR. LOVETT: Plaintiff's 41.

3 MR. HURNEY: 41?

4 MR. LOVETT: Four one.

5 BY MR. LOVETT:

6 Q. Do you recognize this summary of the most recent quarter
7 of DMRs for Patriot? Excuse me. For Apogee?

8 A. Yes. I don't know that I've seen specifically this
9 summary, but I know what it is, yes.

10 Q. And it shows you still to be violating your permit limits
11 at all three outfalls, right?

12 A. Yeah, it does show non-compliances.

13 Q. Apogee has moved to modify the consent decree here based
14 on changed circumstances. What has changed? What has changed
15 since you entered into the consent decree?

16 A. We just only recently, you know, identified a technology
17 that we think can go forward for larger scale treatment.

18 Q. The FBR?

19 A. Yes.

20 Q. And you don't think you can install that FBR by July of
21 2012, do you?

22 A. No, I don't.

23 Q. Has Patriot moved -- or Apogee moved to modify the
24 consent decree to give it until July of 2012 to comply?

25 A. Yes, that's my understanding. Yes.

McHale - Direct

1 Q. Why didn't you ask for enough time?

2 A. We didn't have this late a schedule tied down at the time
3 we made the motion.

4 Q. When did you make the motion?

5 A. I don't recall exactly.

6 Q. Several months ago?

7 A. Several months ago.

8 Q. Have you talked to Mr. Thacker at all? Do you know who
9 he is?

10 A. Yes, I know Mr. Thacker.

11 Q. Have you talked with him?

12 A. Yes, I have.

13 Q. As I understand it, Jackson & Kelly hired him to do a
14 report on potential pitfalls of the sites for installing
15 equalization at Apogee.

16 A. Yes.

17 Q. Patriot didn't retain him, right?

18 A. No, we did not.

19 Q. And you haven't asked him to do that at all.

20 A. I initially contacted Mr. Thacker and had him contact our
21 attorneys, yes.

22 Q. But Patriot hasn't asked Mr. Thacker to evaluate the
23 equalization potential at the outfalls, has it?

24 A. No, we haven't.

25 Q. The FBR and ABMet pilots could have been done

McHale - Direct/Cross

1 concurrently, couldn't they?

2 A. Theoretically. We had an awful lot going on at that time
3 too. We were doing the ABMet pilot.

4 MR. LOVETT: That's all I have. Thank you.

5 THE COURT: All right. Let's go ahead and use what
6 time we have.

7 MR. LOVETT: May I move the admission of the
8 exhibits?

9 MR. HURNEY: No objection.

10 THE COURT: All right. Each of the exhibits
11 identified by counsel's examination of the witness are
12 admitted.

13 CROSS EXAMINATION

14 BY MR. HURNEY:

15 Q. Good afternoon, Mr. McHale.

16 A. Good afternoon.

17 Q. We know each other. I'm Tom Hurney. Have you got energy
18 to answer a few more questions?

19 A. Sure.

20 Q. You've been asked a lot of questions about stuff you
21 didn't do, okay? I'd like to talk with you for a little bit
22 about some stuff you did do.

23 I really want to focus in a minute or two on the time
24 period of the order we're here about, but just go back a
25 little bit and tell me when you first became involved in the

McHale - Cross

1 issue of selenium.

2 A. That would have been in the time frame of October of
3 2006.

4 Q. And why did you -- why did selenium become of interest to
5 you?

6 A. We -- I became aware that we were -- you know, we had --
7 I was the engineering manager at Samples Mines for Catenary
8 Coal Company and we had a compliance schedule on one of our
9 permits that had another year before we were required to be in
10 compliance.

11 Q. So what did you find out and what did you do?

12 A. I contacted Dr. Paul Ziemkiewicz of West Virginia
13 University, who we've worked with, had worked with previously
14 on water treatment issues, and asked him if he could come and
15 take a look at our situation and make recommendations.

16 Q. Who is Dr. Ziemkiewicz?

17 A. Like I said, he's a professor at West Virginia
18 University. He's also the director of the West Virginia Water
19 Research Institute.

20 Q. What did you do next?

21 A. Dr. Ziemkiewicz came to our site and he brought Dr. Ray
22 Lovett, a chemist, with him, and they took water samples from
23 the outlets of concern and took them back to their lab for
24 analysis.

25 Q. Over time did they make a recommendation to you about the

McHale - Cross

1 potential way to treat selenium in water?

2 A. They made a recommendation to employ the steel wool or
3 iron wool to reduce the selenium concentrations in the water.

4 Q. Did you proceed to -- did they proceed to do some
5 evaluation of that at the --

6 A. Yes, they did.

7 Q. How long -- you said you were at the Samples Mine?

8 A. Yes.

9 Q. Okay. And that was with Magnum?

10 A. That was with Magnum, yes.

11 Q. And what was your position?

12 A. I was the engineering manager.

13 Q. At some point did you get a promotion or a job transfer?

14 A. Yes. In January of 2007 I was promoted to director of
15 environmental affairs, actually manager of environmental
16 affairs.

17 Q. We've spent a lot of time talking about the ZVI
18 technology. Summarize -- you know, I don't want to spend a
19 lot of time on this, but tell us how it came to be that you
20 were installing some ZVI tanks at outlets at Apogee in an
21 effort to treat the effluent.

22 A. Well, based on lab work mainly done by Dr. Ray Lovett in
23 conjunction with Dr. Ziemkiewicz, they presented us with a
24 proposal for a pilot system at one of the Samples Mine
25 locations, which we installed in January of 2007. We

McHale - Cross

1 continued monitoring that throughout the year, and in -- we
2 got to the point where we asked Ray Lovett, Dr. Lovett, to
3 come up with a basis for design for ZVI so that we could start
4 designing installations for our other outlets. And that
5 was -- Dr. Lovett did that for us, and he also -- we asked him
6 to -- well, let me step back once.

7 He also proposed that he would set up a pilot system at
8 Outlet 2 over at Hobet to gain additional information. We
9 funded that. And based on his additional information there,
10 he proposed a pilot-scale installation larger -- the larger
11 scale than the Samples pilot test for Hobet. And that was in
12 early 2008 that we installed that.

13 Q. When did you come to install ZVI at the Titanic outlet?

14 A. We had asked Dr. Lovett to design a ZVI system for
15 Outlet 3 at the Apogee permit in question. That's what we
16 refer to as the Titanic outlet. And that was in -- you know,
17 that was shortly after we -- the May order in the hearing
18 for -- from this Court that we had 30 days to comply and 90 --
19 or 30 days to submit a plan and 90 days to comply.

20 And we had been working with Dr. Lovett during that
21 period to come up with a design for that, and we asked him to
22 accelerate that. And we -- subsequent to that, in the
23 August-September time frame, we installed ZVI at Outlet 3.

24 Q. And this is what year?

25 A. Two thousand and --

McHale - Cross

1 Q. Eight?

2 A. -- eight.

3 Q. We had a hearing before Judge Chambers in that year,
4 correct?

5 A. That's right.

6 Q. I want to keep talking about ZVI up to now. At Titanic,
7 what company is the vendor for your ZVI?

8 A. Originally it was ShipShaper. It is now that they
9 have -- it's Global Material Technology, GMT, out of Chicago.

10 Q. Do you purchase the units from GMT?

11 A. Yes, we do.

12 Q. Do they do their own research and development?

13 A. Yes, they do.

14 Q. Who at -- you were testifying earlier -- and I'm going to
15 segue for a minute. You testified earlier that in your prior
16 position, you spent more time on selenium. What changed? I
17 mean why is it now that maybe you don't spend as much of a
18 percentage of your time on selenium?

19 A. Well, my former position, my primary responsibility was
20 for selenium compliance. In my current position, I'm
21 responsible for all environmental compliance at Patriot.

22 Q. Who's tasked with doing the day-to-day work of what I
23 would call the legwork as it relates to selenium?

24 A. James Constant.

25 Q. Does he do that at Apogee and Hobet?

McHale - Cross

1 A. He does it everywhere.

2 Q. Now, you were asked questions about deployment of ZVI.
3 There's two separate types of ZVI, correct?

4 A. Yes, currently.

5 Q. You've got Liberty or MATRIC ZVI.

6 A. Yes.

7 Q. And now you have GMT.

8 A. That's correct.

9 Q. Now, are you installing GMT and Liberty ZVI units at
10 Hobet?

11 A. Yes.

12 Q. In how many outfalls do you think you have these units?

13 A. Currently there's -- we have units installed at
14 approximately 34 outlets. Twenty-two of those are GMT style
15 and the remaining twelve are Liberty style.

16 Q. All right. You've read and talked about the report
17 that -- and you understand there are some limitations to ZVI,
18 correct?

19 A. Yes.

20 Q. Okay. Why -- tell the Court why you are -- why you
21 proceed to install these ZVI systems, whether they be Liberty
22 or whether they be MATRIC, over at Hobet. Why are you doing
23 that?

24 A. Well, one of the goals of our consent order with DEP for
25 Hobet is to have some form of selenium treatment in at all

McHale - Cross

1 outlets, you know, basically as soon as we can. And the most
2 readily available technology to comply and get in on a
3 schedule that is adequate is the ZVI technology.

4 Q. And you concede that ZVI doesn't -- either one -- doesn't
5 treat to Clean Water Act limits all the time.

6 A. It hasn't so far.

7 Q. Okay. Is part of the goal of the installation of these
8 units under the state consent order to reduce the load?

9 A. Yes.

10 Q. Okay. What else are you doing under the state order to
11 investigate technologies for the treatment of selenium?

12 A. We are doing various supplemental environmental projects,
13 one of which was the RO pilot that I mentioned earlier, the
14 ABMet pilot that I mentioned earlier. The fluidized bed
15 reactor pilot is being performed as a supplemental
16 environmental project for the consent order.

17 We are also doing aquatic studies in the Mud River Basin,
18 and we are doing a watershed study of the Mud River Basin to
19 better understand the selenium loading in that watershed.

20 Q. All of these projects are ongoing as we speak?

21 A. Yes. And there's one more. The watershed -- the storm
22 water evaluation, which I talked about earlier, that's also
23 being done as a supplemental environmental project.

24 Q. Okay. Now, looking at -- do you have Joint Exhibit
25 Number 5 in front of you, John?

McHale - Cross

1 A. I'm going to have to dig.

2 Q. That is the -- may I, Your Honor?

3 THE COURT: You may.

4 BY MR. HURNEY:

5 Q. Make sure we have the same page. Conceptual Treatment
6 Alternatives.

7 All right. Now, this is CH2M Hill's review of potential
8 technologies. Is that a fair statement?

9 A. Yes.

10 Q. Did you ask them for this?

11 A. Yes.

12 Q. I think you testified earlier that you contacted and
13 hired CH2M Hill. Was that within days or a week of the
14 hearing we held in front of Judge Chambers in 2008?

15 A. Yes. The following week was when I made my initial call,
16 and I'd heard back from them before the end of the week.

17 Q. Okay. I know there's work orders back and forth, but
18 what did you ask them that brought them to send you this
19 document? What did you ask them for?

20 A. We asked them to identify, of all the technologies they
21 were aware of, the technologies that could potentially be used
22 to treat to the required effluent limitation at Apogee and to
23 help, you know, assist us in selecting the appropriate
24 technology.

25 Q. Okay. Now, there's an executive summary of this report

McHale - Cross

1 in the first several pages, correct?

2 A. Yes.

3 Q. And does that, if you look at that quickly, does that
4 appear to give a brief overview of the strengths and
5 weaknesses of each of these technologies?

6 A. Yes, I believe so.

7 Q. All right. Let me ask you a question. At the time you
8 received this report on January 26, 2009, how many of these
9 technologies had been installed full-scale to treat water at
10 surface mines in West Virginia?

11 A. None that I'm aware of.

12 Q. Are you aware through CH2M Hill or anything else as to
13 whether anyone had employed or was employing in January of
14 2009 any of these technologies in surface mine environments?

15 A. No, I was not. I'm not aware of any.

16 Q. Okay. You are the environmental manager?

17 A. Yes.

18 Q. Okay. Are you a member of the NAMC?

19 A. Yes, I am.

20 Q. What is that?

21 A. North American Metals Council. They have a selenium
22 working group which meets twice a year.

23 Q. Are you a member of that?

24 A. Yes, I am.

25 Q. Do you attend the meetings?

McHale - Cross

1 A. Yes, I do.

2 Q. You talk about selenium?

3 A. Exclusively about selenium.

4 Q. Must be fairly exciting meetings, I assume. Do you --
5 does the Coal Association ever -- do they have a task force on
6 selenium?

7 A. Not -- no, they don't have a task force for selenium.

8 Q. Do you think that if there was a scale that if any of
9 these technologies were being employed somewhere else in
10 West Virginia to treat selenium on a full-scale basis, you'd
11 know about it?

12 A. Yes.

13 Q. Okay. Now, I have a question for you. Looking at this
14 report, is there anything in this report that says ZVI doesn't
15 remove selenium?

16 A. No.

17 Q. Okay. Based on your knowledge, does ZVI remove selenium?

18 A. Yes.

19 Q. Okay. Are there challenges with pretreatment of the
20 water in ZVI systems so that they are more efficient?

21 A. ZVI doesn't seem to require the pretreatment some other
22 technologies do.

23 Q. I thought they were experimenting with the pH, with CO2
24 or acid added to it to --

25 A. More recently they have been experimenting with pH on

McHale - Cross

1 pretreatment in order to reduce the scaling that could affect
2 the flow through the media.

3 Q. Now, jumping back to ZVI -- and I apologize for segueing
4 here -- are the ZVI tanks at Titanic the same configuration
5 that they were when you installed them back in 2008?

6 A. The basic configuration is more or less the same, but
7 there have been changes to mainly the media.

8 Q. Well, I guess I was thinking -- I wanted to ask you, you
9 said the configuration. The tanks are still in the same place
10 they were?

11 A. Yeah, pretty much.

12 Q. What have they done with the innards, with the media,
13 that's different?

14 A. The most recent innovation that we've employed is
15 basically rather than having the iron wool media basically in
16 what the vendor calls a hockey puck, which is just steel wool
17 that's basically just, you know, put together, you know, in no
18 particular order, they've basically come up with a new
19 configuration that resembles a bale of hay. They call them
20 reels. And this makes for a more homogenous type of media,
21 and it has so far -- well, theoretically what it does, it
22 allows for better permeability through the media and more
23 surface contact, less short-circuiting of the water through it
24 and better efficiency of the selenium reduction.

25 MR. LOVETT: Objection, Your Honor, to any further

McHale - Cross

1 testimony along these lines. You know, we don't have a direct
2 witness here about the reels. As far as I know, they're not
3 using them. They don't know if they're going to work. It
4 seems well beyond the scope of his knowledge or expertise.

5 THE COURT: Well, I take it the purpose of it is to
6 demonstrate the efforts he's made to investigate other
7 technologies. So I'll deny the objection.

8 BY MR. HURNEY:

9 Q. Let me direct your attention -- I want to discuss with
10 you MATRIC. What was the original -- first of all, when did
11 you initially retain MATRIC?

12 A. We met with MATRIC the Wednesday of the week following
13 our last court hearing.

14 Q. Back in 2008?

15 A. Yes.

16 Q. Okay. Did you ask MATRIC for a proposal to treat
17 selenium?

18 A. We asked MATRIC to give us a proposal for -- to, yeah, to
19 evaluate technologies for treating selenium.

20 Q. Did they bring you an idea? Did they bring you a
21 proposal?

22 A. Yes, they did.

23 Q. Could you describe -- I don't want you to testify as an
24 expert or anything, but just describe generally what process
25 they brought to you to treat selenium.

McHale - Cross

1 A. Well, you know, part of what that proposal is to evaluate
2 ZVI also as a potential technology, but what they had come up
3 with -- what they came up with was basically a different media
4 configuration of a ZVI.

5 Q. How was it different?

6 A. Rather than being iron wool or steel wool, it is a --
7 basically it is iron-impregnated foam, and it is similar to
8 filtration technology that has been developed for other
9 metals, some heavy metal zinc and things like that, but not
10 with the ZVI media, with other things, with other elements
11 impregnated in the foam, and it's diffused through it. And
12 the benefits that they proposed to us for this was that this
13 type of media allowed -- was much more permeable, that the
14 retention time required to reduce selenium is much less than
15 other ZVI media than that.

16 Also, you know, it was more -- it was better suited for a
17 passive type of a system because it did not require -- it was
18 not a large pressure drop across the media, so it didn't
19 require pumping.

20 Q. How were they going to deploy it? In the original
21 design, how was that to be deployed?

22 A. The original design was basically to build it, you know,
23 above the inlet to the ponds. It was basically for -- the
24 configurations were basically constructed concrete-lined
25 troughs with ZVI media and that the flow through it would be

McHale - Cross

1 by gravity.

2 Q. At the time that you retained MATRIC, did you have a
3 June 30, 2009 deadline?

4 A. No, we did not. It was in -- we retained them in like
5 late July. We had not yet --

6 Q. Did you -- was there a time -- when you retained them,
7 did you have a deadline for compliance at some point?

8 A. We --

9 Q. I'll tell you what I'm getting at. I want to know did
10 you retain the Liberty/MATRIC to install a -- install systems
11 at Apogee that they told you would be -- would get you in
12 compliance by your deadline?

13 A. Yes. We actually in November of 2008 tasked them with
14 designing and constructing systems by that deadline.

15 Q. Okay. Did they bring -- was the initial proposal these
16 troughs?

17 A. Yes, and it was -- there was no formal design submitted
18 up-front. What we basically did with that was we -- Jim
19 Constant and I met with them on at least a weekly basis for
20 status updates with the -- toward, you know, getting this
21 system designed and then, you know, initiating the
22 construction process so we'd have it installed by the
23 June 30th deadline.

24 Q. Okay. Did they pilot that?

25 A. We did pilot that.

McHale - Cross

1 Q. Did it work?

2 A. It didn't work a hundred percent of the time, but it did
3 work.

4 Q. Did Liberty/MATRIC at some point change its design?

5 A. Yes.

6 Q. Okay. Why was that? Under what circumstances did they
7 bring a new design to you?

8 A. Well, during the piloting process, initially results were
9 very promising, but as time went on, what happened was scaling
10 developed in the media and blocking off the flow. And, you
11 know, this was designed as a horizontal flow through the media.
12 And what they determined was that they needed to change the
13 flow from horizontal to vertical flow.

14 MR. LOVETT: Your Honor, I understand your previous
15 ruling, but, again, there's nobody here from MATRIC to testify
16 about this. And I think that, you know, he doesn't understand
17 the MATRIC technology. He has no expertise in this area. And
18 if they want to testify about MATRIC, what its pluses and
19 minuses are, they should have somebody from MATRIC here to do
20 it.

21 MR. HURNEY: A couple things, Your Honor. I sat
22 here for two hours while he asked questions about every single
23 technology in this book, in this report of January 26. He
24 asked question after question after question. The reason
25 that -- the reason that this witness can answer these

McHale - Cross

1 questions is he was the person who tasked different
2 contractors with the job of getting him into compliance.

3 Now, we can pick at him all we want, but I think he's
4 allowed to tell this Court what he did, when he did it, and
5 why he did it.

6 THE COURT: I agree. I overrule the objection.

7 BY MR. HURNEY:

8 Q. All right. Last question. So the MATRIC and Liberty
9 work was ongoing.

10 A. Yes.

11 Q. Okay. And I think you said this is in kind of the early
12 2009 time frame?

13 A. Yes. That was initiated pretty much in December and
14 continued through into early June.

15 Q. Okay. That wasn't the only thing that you were doing
16 during that time frame, was it?

17 A. No.

18 Q. Okay. What other vendors were you working with during
19 that time period contemporaneous with MATRIC and GMT?

20 A. Well, we had GE for both the RO pilot and the ABMet
21 pilot.

22 Q. Okay. Tell me what GE was doing for you and when, to the
23 best of your memory.

24 A. Okay. GE piloted our RO system in January of 2009.

25 Q. How long did that pilot last?

McHale - Cross

1 A. Just a couple of weeks.

2 Q. Why did it terminate?

3 A. Basically it was a catastrophic failure due to fouling
4 issues, scaling issues -- not scaling. Fouling issues because
5 of suspended solids.

6 Q. What did GE do for you next?

7 A. The ABMet pilot.

8 Q. Am I correct that ABMet is a biologic system?

9 A. Yes, it is.

10 Q. When did they do the ABMet pilot?

11 A. That process happened in the February through May time
12 frame, set up an operation and the commissioning.

13 Q. During the course of the -- while GE was doing the ABMet
14 pilot, did you institute any other pilot projects?

15 A. Yes. Subsequent to the March 19th consent order, we
16 initiated two separate VSEP pilots, one at Hobet and one at
17 Apogee.

18 Q. Did CH2M Hill ever recommend to you that you proceed with
19 the VSEP pilot?

20 A. No.

21 Q. Why did you do a VSEP pilot?

22 A. Because that was what we negotiated in the consent
23 decree.

24 Q. Because the plaintiffs insisted on VSEP being piloted as
25 part of the consent decree; isn't that true?

McHale - Cross

1 A. Yes. We needed more time and they wanted VSEP piloted.

2 Q. Did you bring VSEP in to perform the pilot? And tell me
3 what the time frame was.

4 A. It was basically a four-month period, and, you know, we
5 started the process in April. You know, I think the equipment
6 was delivered by the end of May. Yeah. And May through July.

7 Q. Okay. What was the result of the pilot?

8 A. We -- we -- you know, the result of the pilot was that,
9 you know, in our opinion it did not consistently perform.

10 Q. Now, tell me about the -- the FBR pilot started around
11 this time. Tell me about that pilot. Who performed it?

12 A. The FBR pilot was performed by CH2M Hill this year.

13 Q. And tell us, when did you order it, when did they start
14 it, and when did they finish it?

15 A. The FBR pilot, we were to -- basically had got an
16 extension in time to our Hobet consent order in 2009, the
17 latter part of 2009. That supplemental environmental project
18 for FBR was included in the consent order for Hobet, and we
19 had had CH2M Hill work out the details of that project for
20 inclusion in the order.

21 Q. So is it fair to say that you were embarking on some of
22 these projects in an attempt to comply with the state consent
23 order?

24 A. Oh, yes.

25 Q. Okay. Now, when did the FBR pilot -- Your Honor, is

McHale - Cross

1 there a stop time?

2 THE COURT: Well, pretty soon. Are you at a place
3 or close to a place where it would be convenient to stop?

4 MR. HURNEY: Why don't I finish a few questions on
5 FBR and then I can break.

6 THE COURT: That would be great.

7 BY MR. HURNEY:

8 Q. When did the FBR pilot end?

9 A. I think testing stopped in the end of May and we
10 dismantled it early June.

11 Q. Okay. When did you receive -- you received a draft and
12 then a final report on FBR?

13 A. Yes, I did.

14 Q. When did you get those?

15 A. The draft I got on July 14th and then the final on
16 July 22nd.

17 Q. All right. And in between -- Your Honor, I think I'm at
18 a break point if that's satisfactory to the Court.

19 THE COURT: That would be fine. All right.

20 MR. LOVETT: Your Honor, can I ask the witness not
21 to talk to his lawyer or anyone else about his testimony while
22 he's on the stand?

23 THE COURT: All right. Mr. McHale, since you'll be
24 on the stand again tomorrow, please don't discuss your
25 testimony with your attorneys or anyone else.

1 THE WITNESS: Yes, Your Honor.

2 THE COURT: All right. We'll stand adjourned until
3 9:00 a.m. tomorrow morning.

4 (Proceedings adjourned at 5:05 p.m.)
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21 I, Teresa M. Ruffner, certify that the foregoing is a
22 correct transcript from the record of proceedings in the
23 above-entitled matter.

24 s/Teresa M. Ruffner

November 27, 2010

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